Hewlett-Packard program catalog supplement

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HP SOFTWARE CENTER
11000 WOLFE ROAD
CUPERTINO, CALIFORNIA
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introduction

This supplement updates the Hewlett-Packard *Program Catalog,* 5950-9226. All contributed and supported programs added since June 1971 are abstracted by ascending classification code number.

- Section I contains Program abstracts submitted or revised since the June, 1971 edition of the HP Program Catalog.
- Section II contains a complete Cross-Reference Index for *all* contributed and supported CPU programs in our Users' Library.
- Section III contains a complete Price List for *all* contributed and supported CPU programs in our Users' Library.

A summary of the HP Software Center program titles appears at the end of this supplement. This summary lists all the available contributed and supported programs and, to help you further, notes those programs that are new (*N) or that were revised (*R) since you received your *Program Catalog.*

The Software Center classification codes have also been revised; the new codes precede the abstracts in Section I.

If you wish to order a program or additional copies of this supplement, contact your local HP Sales Office. If you have misplaced your *Program Catalog,* ask them for another complimentary copy.

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A000, OPERATING AND PROGRAMMING SYSTEMS

A001, TIME-SHARED OPERATING SYSTEMS

22403A, HP 2870 EIGHT CHANNEL DISC TIME SHARE BASIC SYSTEM

This system is a modification of HP 2000B Time Share BASIC to provide users with a small low cost disc based time sharing system. The HP 2870 moving head disc drive helped to achieve this cost objective.

Since the HP 2870 disc is much slower than the fixed head disc, a number of compromises had to be made. The number of ports was limited to eight, and the number of disc data files accessible in a single program was four. These modifications significantly decreased the number of disc accesses and the memory required, but each user has a working area of approximately 2730 computer words.

Minimum hardware requirements include an HP 2116B with 16K core, 2 channels DMA, EAU, Power Fail/Auto Restart, photoreader, Time Base Generator, an HP 2754 teleprinter, up to eight HP 2752 teleprinters, an HP 2870A Disc Drive with controller and interface, and an HP 2881A Power Supply.

Assembly language, absolute.

Contributed:
Kile Baker, John Shema, Nick Schrauger
Montana State University

24230A, 2000C TIME-SHARED BASIC SYSTEM

The most recent addition to the family of HP time-sharing systems, the 2000C system uses two computers—one for actual computation and the other for controlling access to the main computer. The system supports up to 32 terminals; programs can be entered through the terminal keyboard or through the paper tape reader.

Each user has access to three libraries—a public library, his own private library that cannot be accessed by anyone else, and the intermediate library available to a group of users.

Compared to the HP 2000A and 2000B time-sharing systems, the 2000C offers the following advancements in system features and further extensions to the BASIC language:

a. Moving-head discs are a key feature of the system. Up to eight discs are allowed and provide greatly increased storage capaicty for programs and files.

b. Special system commands permit the operator to store selected user programs and files on the fixed-head drum for rapid access.

c. The language processor now features formatted output, providing more precise control of printing and extending line length beyond the usual limit of 72 characters per line through use of PRINT USING and IMAGE statements.

d. A magnetic tape transport allows the system operator to load and dump the entire system or selected user programs and files. With the mag. tape transport feature, the computer and peripheral equipment can be used easily for other applications such as batch processing.

e. Length of a single program has been extended to over 10,000 (16-bit) words—about 1000 BASIC statements per program.

f. For larger programs, the CHAIN and COMMON statements allow virtually unlimited program lengths, with variables common to all programs.

g. File size has been increased to 16 million characters—over 8 million 16-bit words.

h. A program may reference many files, limited only by available disc storage space.

Further information on the system is provided in the publications *2000C: A Guide to Time-Shared BASIC* (HP order no. 02000-90016) and *2000C: Time-Shared BASIC Operator's Guide* (HP order no. 02000-90017).

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24231A,2000B/C TIME SHARED BASIC COMMUNICATIONS PROCESSOR

The HP 2000B Time-Shared BASIC System has been separated into modules to facilitate future updates and sharing of modules between the HP 2000B System and other similar systems. This is the terminal multiplexing module for the 2000B and 2000C Systems. This and other 2000B TSB modules obsolete the HP 2000B System, HP Order Number 20877.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24232A, 2000C TIME SHARED BASIC LOADER (2883 DISC)

This program is used with an HP 2000C Time-Shared BASIC system that contains HP 2883 and HP 2884 disc files. The loader provides system loading and dumping (backup) on HP 3030 or HP 7970 magnetic tape drives.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24233A, 2000C TIME SHARED BASIC LOADER (2870 DISC)

This program is used with an HP 2000C Time-Shared BASIC system with an HP 2870 disc. The loader provides system loading and dumping (backup) on HP 3030 or HP 7970 magnetic tape drives.

Assembly language, absolute.

HP supported:
Data System Development Division (Cupertino)

24238B, 2000B TIME SHARED BASIC LOADER

The HP 2000B Time-Shared BASIC System has been separated into modules to facilitate future updates and sharing of modules between the HP 2000B System and other similar systems. This is the loader module, and it has been corrected to verify file marks correctly on the HP 7970 magnetic tape. This and other HP 2000B TSB modules obsolete the HP 2000B System, HP Order Number 20877.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24239B, 2000B TIME-SHARED BASIC SYSTEM

The HP 2000B Time-Shared BASIC System has been separated into modules to facilitate future updates and sharing of modules between the HP 2000B Systems and other similar systems. This is the system module, and it includes the following corrections:

a. Blanks are now stripped from commands.

b. ENTER accepts plus (+) and minus (-) when inputting a number.

c. ENTER does *not* strip off leading blanks.

d. DELETE does *not* allow parameters 9999.

e. KILLID removes directory entries properly when the last track contains only the ending pseudo entry.

f. An attempt to print a string greater than 72 characters is flagged as an error.

g. A simple variable appearing in COMMON more than once is flagged as an error.

h. All lower case characters are converted to upper case, except in quoted strings and string inputs to INPUT and ENTER statements.

i. Appending a program after scratching another program which had at least one variable in common will not cause an error.

j. Possible loss of a program previously stored by a CSAVE has been eliminated.

k. Aborting a program which has just filled the output buffer will not cause a buffer wrap-around.

l. SLEEP is no longer aborted if a key on the teleprinter is pressed while SLEEP is logging off the users.

m. The problem that erroneously caused the message NAM-XXX-ONLY 6 CHARS ACCEPTED has been eliminated.

This and other HP 2000B TSB modules obsolete the HP 2000B System, HP order number 20877.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino),

20017C, BCS BUFFERED TELEPRINTER DRIVER (D.00)

This BCS driver controls teleprinter I/O operations.

Equipment required is one HP 2752 or 2754 Teleprinter, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20985D, DOS TELEPRINTER DRIVER (DVR00)

This DOS and DOS-M driver controls teleprinter I/O operations.

Equipment required is one HP 2752 or 2754 Teleprinter, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22237C TELEPRINTER SELECTOR — BASIC CALLABLE

This routine, which operates under the 20392A BASIC Operating System, allows an operator to transfer teleprinter I/O operations to either of two teleprinters. One or both of the teleprinters can be at a remote site, connected to the computer by a telephone data-link system. Transfer from one teleprinter to the other is accomplished in any of the following ways:

a. The word "BYE" is typed (or read from punched tape) on the teleprinter currently recognized by the program.

b. When the computer is halted, a number is entered into the switch register. The transfer takes place when the computer is started.

c. The program calls a transfer routine.

When the transfer takes place, the teleprinter which will be recognized by the program types "READY."

Assembly language, absolute.

Contributed:
Roy Jacobus
Westinghouse Electric Co.

22244B 16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM

This program provides data communications capability between two Hewlett-Packard 2100 series computers. This utility is designed to be used in conjunction with D.50, 22328, a BCS Telecommunications Driver. Interactive commands and messages allow the operator to specify the transmission code, ASCII, EBCDIC, or 6-bit TRANSCODE through a system console teleprinter. The user may also specify the direction of transmission, the source or destination peripheral device, the mode of transmission, and various other functions. All data transmitted is compressed before transmission and expanded upon reception in blocked or unblocked mode.

Equipment required includes 16K core, an HP 2752 or 2754 teleprinter, a BELL 202C Modem, and an HP 12539 Time Base Generator.

Assembly language, relocatable.

Contributed:
Bill Alexander
HP, Midwest Sales Region

22311A, BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION

This BCS teleprinter driver incorporates a power fail routine for any HP 21XX computer with power fail. It saves and restores all the registers including the switch register. If the autorestart option is available, this driver will restart the program at the interrupted point and restore the teleprinter to its previous status.

If the full capability of this routine is used to drive a complete paper tape system including photoreader and high-speed punch, then this driver alone will revive the complete paper tape system after autorestart.

Equipment required is any 4K HP computer with power fail, an HP 2752A or 2754 teleprinter, and optionally, autorestart.

Assembly language relocatable.

Contributed:
Enrico P. Mariani
HP, Italy/Milan

22328A, BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS & ASYNCHRONOUS DEVICES, D.50

D.50 is designed to interface telecommunication synchronous or asynchronous devices using IBM's Binary Synchronous Control line discipline. The driver may be used for data communications between two 2100 series computers, a 2100 series computer and an IBM computer with a telecommunications adapter, or a 2100 series and any terminal (or other computer) operating under BSC line discipline (as an IBM 2780). The synchronous mode of the driver is required with most IBM equipment.

All requests to D.50 must be a standard formatted request to .IOC, buffered or unbuffered. The function processors in D.50 services requests to CLEAR, READ, WRITE, HAND-SHAKE, AUTO-ANSWER, RECEIVE TO SEND, SEND END OF FILE, and EXTENDED STATUS.

D.50 will support three different character codes — ASCII, EBCDIC, and 6-bit TRANSCODE. In addition, transparent mode is provided where data link control characters may be transmitted as data without taking on control meaning as would be required in the transmission of binary data. Conversational mode is also provided where both terminals alternately send and then receive data.

Coupled with HP's 12621A and 12622A synchronous interface boards or 12587A Asynchronous Data Set Interface Kit, 12539A Time Base Generator, and an appropriate modem, this driver will allow an HP 2100 series computer to communicate directly with an IBM or BSC terminal. The calling program initiates the appropriate function calls to carry out data transmissions. Included with this driver is a calling program which makes a 2100 computer simulate an IBM 2780 terminal. Also, this driver will interface directly with contributed programs 22244 and 22245 for 2100 to 2100 series computer communication.

Assembly language, relocatable.

Contributed:
Rich Nielsen
HP, Palo Alto

22367A, 8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM

This program provides data communications capability between two Hewlett-Packard 2100 series computers. This utility is designed to be used in conjunction with D.50, 22328, a BCS Telecommunications Driver. Interactive commands and messages allow the operator to specify the transmission code, ASCII or EBCDIC, through a system console teleprinter. The user may also specify the direction of transmission, the source or destination peripheral device, the mode of transmission, and various other functions. All data transmitted is compressed before transmission and expanded upon reception in blocked or unblocked mode.

Equipment required included 8K core, an HP 2752 or 2754 teleprinter, a BELL 202C modem, and an HP 12539 Time Base Generator.

Assembly language, relocatable.

Contributed:
Bill Alexander
HP, Midwest Sales Region

22372A HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108

This program allows an HP 2100 series computer to operate as a remote batch terminal to a Univac 1108. The HP 2100 series computer simulates the operation of a Univac 1004 as a remote batch terminal to a Univac 1108 via standard telecommunications techniques. The program conforms to Univac specifications for the 1108 operating systems, EXEC 11 and EXEC 8.

Basically this program operates by sending and receiving control information and data buffers. This program handles only the communications logic; it relies on external subroutines for assembly of data buffers, compression, and code conversion. Data buffers sent and received consist of 320 or 330 characters of compressed or uncompressed data. All data sent and received is in excess-three code, XS-3 (Univac's 1004 standard). The supporting documentation details Univac's communication techniques, compression techniques, and XS-3 code.

This program operates under BCS in an 8K 2100 series computer using a 12618A Synchronous Data Set Interface and a 201A3 Bell Data Set (200 Baud Synchronous).

Assembly language, relocatable.

Contributed:
Jerry Reaugh
Data Systems

22374A, A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER

This driver establishes data communications between HP 2100 series computers and the TC-380 Olivetti buffered terminal. It allows the HP computer to input or output control signals with the following features; half-duplex transmission, 1200 bits/sec., even parity, 8-bit characters, 1 start bit, and 1 stop bit. The driver also initiates, continues, and completes all data transmission or reception commands via an HP 12587 Interface Board.

On read requests, the driver receives character per character one Olivetti formatted buffer with a maximum of 230 ISO coded characters. It translates these characters into an ASCII packed buffer or an XS-3 buffer properly formatted for communication with a Univac 1108 computer. On write requests, the driver translates into ISO code and sends one ASCII packed buffer or one formatted XS-3 buffer character per character to the Olivetti terminal.

The communication procedures are selecting and polling. One useful application of this driver is in the environment where an HP minicomputer handles I/O for a Univac 1108 computer.

Assembly language, relocatable.

Contributed:
Elizabeth Caloyannis
HP, France/Orsay

22382B, SYNCHRONOUS DATA COMMUNICATIONS DRIVERS FOR BCS, D.60 AND D.61

BCS drivers D.60 and D.61 represent an extension of the hardware capabilities of Synchronous Data Communication Interfaces for HP Computers in a BCS software environment. They are control character free and procedure (control character sequences) free.

Both drivers call a user written routine that uses up to 8 modes of transmissions or different sets of control characters consistent with selected disciplines for synchronized transmission of binary-coded data.

Communication procedure (control character sequences) is completely under the responsibility of the program that calls the drivers D.60 and D.61 via .IOC.

These two drivers allow simple, half-duplex and full duplex communication.

Equipment required includes any HP 2100 computer, an HP 12618A Synchronous Data Set or HP 12621A Synchronous Data Set, and a Synchronous Modem or Data Set compatible with the hardware specifications of the Interface Kit.

Assembly language, relocatable.

Contributed:
Ferdinando Longoni
HP, Germany/Boblingen

22387A, D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER

D.70 is an input/output driver, written in the form of a subroutine, designed to operate in an interrupt controlled BCS environment. It interfaces HP 2100 series computers to telecommunication devices under an ARQ (Automatic Request for Resend) line discipline. Reverse channel is used as the request for resend medium. The driver supports HP's asynchronous I/O boards coupled to any appropriate modem with reverse channel feature (as a BELL 202C).

The ARQ method used by this driver can considerably increase throughput rates, especially for short data blocks. In effect, it simulates a pseudo full-duplex line on a half-duplex circuit.

Equipment required includes 8K core, an HP 12539 Time Base Generator, an HP 12587A Asynchronous Data Set Interface Kit, and an appropriate modem with the reverse channel feature, BELL 202C.

Assembly language, relocatable.

Contributed:
Rich Nielsen
HP, Corporate

22394A, CORE-SAVING TELEPRINTER I/O DRIVER AND CODE CONVERSION ROUTINE

This driver allows a FORTRAN compiled program to bypass the formatter, .IOC., and standard BCS drivers for conversational ASCII text and real data input/output on a single teleprinter. It is a completely self-contained relocatable I/O system with ASCII and real code conversion routines using only 600_{10} words. Thus core amounting to $800_{(10)}$ + .IOC. + drivers are saved over the usual formatted read/write. In a 4K machine, this results in the user having an extra 1K available for raw FORTRAN code.

All relocatable binary code including this driver and the library must be loaded and punched onto an absolute tape without .IOC., the formatter, or the BCS drivers by using the contributed Offline Relocating Loader, HP 22297.

Assembly language, relocatable.

Contributed:
Don Mactaggart
Canadian Marconi Company

22412A, BCS DATA TRANSFER TELEPRINTER DRIVER

This routine is particularly useful to the 4K user who wishes to transfer two work floating point data via teleprinter. It bypasses BCS drivers, .IOC., and the formatter.

It is non-interrupt and FORTRAN callable.

Assembly language, relocatable.

Contributed:
Don MacTaggart
Canadian Marconi Company

24157B, DOS-M SYSTEM TELEPRINTER DRIVER (DVR05)

This DOS-M driver controls keyboard input and typewriter output operations for the teleprinter. The driver is core resident, and to conserve storage space the means for reading or punching tape at the teleprinter is not provided. If teleprinter tape reading and tape punching are required, program 20985 is used.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20098B, BCS 40-BIT OUTPUT REGISTER DRIVER (D.54)

This driver forwards up to 40 bits in a single output operation to an HP 562AR or 5050A/B Digital Recorder. The driver can also be used with two 40-bit output register interface kits to permit employment of all 18 columns of an HP 5050A/B Digital Recorder. As a further use, this driver can furnish 40 bits to an HP 2759A Frequency Synthesizer Programmer or other suitable I/O device.

22229B, HP 12551A/B RELAY REGISTER INTERFACE DRIVER — FORTRAN CALLABLE

Used with the HP 12551A or 12551B Relay Output Register, this routine opens or closes any specified relay contact, In addition, all relay contacts can be opened simultaneously. After contact opening or closure, the routine remains in a waiting loop for approximately 300 milliseconds to allow time for relay contacts to settle.

Equipment required is one HP 12551A or a 12551B Relay Output Register, with interface kit.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22271B, ZEISS DMC 25 COLORIMETER DRIVER — FORTRAN CALLABLE

This driver measures the remission of a material which is irradiated with light between 380 nm and 725 nm wavelength from the Zeiss DMC 25 Colorimeter. These values in steps of 5 nm are the base from which to calculate color contents and color differences of materials with subjective equal colors. FORTRAN callable.

Equipment required is one HP 2752A teleprinter, an 8K computer, an HP Data Source Interface card, and the Zeiss DMC 25 Colorimeter.

Assembly language, relocatable.

Contributed:
Klaus Stamer
HP, Germany/Frankfurt

22275B, ZEISS DMC 25 COLORIMETER DRIVER — BASIC CALLABLE

This driver measures the remission of a material which is irradiated with light between 380 nm and 725 nm wavelength from the Zeiss DMC 25 Colorimeter. These values in steps of 5 nm are the base from which to calculate color contents and color differences of materials with subjective equal colors. It is used with the HP 20392A BASIC operating system.

Equipment required is one HP 2752A teleprinter, an 8K computer, an HP Data Source Interface card, and the Zeiss DMC 25 Colorimeter.

Assembly language, absolute.

Contributed:
Klaus Stamer
HP Germany/Frankfurt

22313A, HP 12551B RELAY REGISTER INTERFACE DRIVER — BASIC CALLABLE

The absolute modification to the HP 20392A BASIC System opens or closes relay contacts on the HP 12551B Relay Register. It checks the range and processes the contact number. The driver waits in a loop to allow the contacts to settle before returning to the calling program.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

14900B, BCS 6936A MULTIPROGRAMMER DRIVER (D.61)

This BCS driver transfers control data from the calling program to a device controlled by an HP 6936A Multiprogrammer Data Distribution System. The 6936A is an equipment item which provides the means for controlling up to 240 devices. These devices can vary widely in nature, but typically they are such things as programmable power supplies, attenuators, filters, modulators, function generators, CRT display units, X-Y or strip-chart recorders, servos, stepping motors, valves, solenoids, alarm systems, or memory testing systems. The routine performs the output operations by the non-interrupt method, and it checks legality and provides formatting for the 6936A Multiprogrammer.

Equipment required is one HP 6936A Multiprogrammer Data Distribution System with interface kit, and controlled devices.

Assembly language, relocatable.

HP supported:
New Jersey and Berkeley Heights Division

14909A, 6940 DRIVER FOR 24000A BASIC

This program establishes a 24000 BASIC subroutine which controls a 6940A bi-directional multiprogrammer. The subroutine overlays the BASIC matrix routines.

The calling sequence is

NNNN CALL (1,M,A,S,D,F)

where NNNN = the statement number, 1 identifies the driver subroutine, M = mode of I/O transfer, A = decimal select code, S = slot address, D = data value, and F = flag returned by the driver (giving varying information depending upon the CALL and the 6940A response).

Assembly language, absolute

HP supported:
New Jersey Division

20028B, BCS 2323A SUBSYSTEM DRIVER ANALOG SCAN SCN-12 (D.77)

This BCS driver acquires 8-4-2-1 BCD measurements from an HP 2323A Low-Speed Data Acquisition Subsystem. Control words from the calling program establish the data channel to be sampled, delay, meter function (type of measurement), meter range, and mode (measurement or calibration check). Upon acquiring a measurement, the 8-4-2-1 BCD form. Routine 20210 can be used to convert the BCD data to floating point binary form.

Equipment required is one HP 2323A Low-Speed Data Acquisition Subsystem (8-4-2-1 BCD output).

Assembly language, relocatable.

HP supported
Automatic Measurement Div.

20430A, DIAGNOSTIC: 2402A PROG/DATA INTERFACE

This routine tests the HP 2402A Integrating Digital Voltmeter and the associated interface kit.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

20501E, BCS SCN-ANALOG 8-4-2-1 SCAN ROUTINE (D.77)

This BCS driver acquires 8-4-2-1 BCD measurements from an HP 2320A or 2322A Low-Level Data Acquisition Subsystem. The measurements are forwarded in 8-4-2-1 form to the calling program. Control words establish the data channel to be sampled, delay, type of measurement, sample time, mode (measurement or calibration check), and meter range. Automatic range selection can be programmed if the measuring instrument has this optional feature.

The 8-4-2-1 measurements acquired can be converted to floating-point form by program 20210.

Equipment required is one HP 2320A or 2322A Low-Speed Data Acquisition Subsystem (8-4-2-1 BCD output).

Assembly language, relocatable.

HP supported:
Automatic Measurement Div.

20517C, BCS SCN-ANALOG 4-2-2-1 SCAN ROUTINE (D.77)

This BCS driver acquires 4-2-2-1 BCD measurements from an HP 2322A Low-Speed Data Acquisition Subsystem. The measurements are converted to 8-4-2-1 form and forwarded to the calling program. Control words establish the data channel to be sampled, delay, and type of measurement. Automatic range selection can be used if the measuring instrument has this optional feature.

The 8-4-2-1 measurements provided by the routine can be converted to floating-point form by program 20210.

Equipment required is one HP 2322A Low-Speed Data Acquisition Subsystem (4-2-2-1 BCD output).

Assembly language, relocatable.

HP supported:
Automatic Measurement Div.

22053B, HP 3450A DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE

This driver acquires 8-4-2-1 BCD measurements from an HP 3450A Digital Multi-Function Meter. Meter function (type of measurement) and range are selected manually at the meter. Automatic range selection, a standard feature of the meter, can be employed if desired. As well as supplying the measured value to the calling program in floating point form, the routine furnishes an additional word which indicates the type of measurement for which the meter is set.

Equipment required is one HP 3450A Digital Multi-Function Meter (8-4-2-1 BCD output), with digital output option and data source interface kit.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22108C, HP 3450A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE

This driver acquires 8-4-2-1 BCD measurements from an HP 3450A Digital Multi-Function Meter. Meter function (type of measurement) and range are selected manually at the meter. Automatic range selection, a standard feature of the meter, can be employed if desired. As well as supplying the measured value to the calling program in floating point form, the routine furnishes an additional word which indicates the type of measurement for which the meter is set. The routine operates under the HP 20392A BASIC Operating System.

Equipment required is one HP 3450A Digital Multi-Function Meter (8-4-2-1 BCD output), with digital output option and data source interface kit.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22226B, HP 3480A/B DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE

This driver acquires 8-4-2-1 BCD measurements from an HP 3480A or 3480B Digital Voltmeter. A control word from the calling program specifies the meter function (type of measurement), use of an ac-noise filter (if the meter is equipped with this optional feature), delay, and meter range, Automatic range selection, a standard feature of the meter, can be employed if desired. The measurement acquired is converted to floating point form and forwarded to the calling program.

Equipment required is one HP 3480A or 3480B Digital Voltmeter (8-4-2-1 BCD output), with interface kit.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22276A, RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION ROUTINES

DVR42 operates under the I/O control module of the RTE to control the HP 2911 Crossbar Scanner. This driver is responsible for controlling output to any number of scanner cards simultaneously. It accepts binary write and clear requests. FORTRAN callable.

Assembly language, relocatable.

Contributed:
M.H. Kendall III
Wyle Laboratories

22294A, DOS/DOS-M/RTE HP 3480 DVM DRIVER AND BCD CONVERSION

This driver inputs BCD data from the HP 3480 DVM, and "BCD" converts it to floating point. The initiator will test for the correct calling sequence and then start the measurement. The continuator returns the raw data into a two-word array where the conversion routine converts it to floating point format. FORTRAN callable.

Assembly language, relocatable.

Contributed:
Dieter Schmidtke
HP, Germany/Frankfurt

22305A, HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE

This driver processes and outputs the program control word to the DVM, programming it for range, function and mode for HP 20392 BASIC. Then the driver accepts the BCD data measured by the DVM, converts it to floating point and returns to the calling program. Error returns are provided for overload or incompleted calls.

Equipment required includes 8K, HP 2402A Digital Voltmeter, HP 12567A DVM Programming Interface Kit, and an HP 12604B Data Source Interface Kit.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22317A, RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE

This FORTRAN callable subroutine allows RTE to use most of memory as a buffer to input data from the HP 2310 analog to digital converter and output it to the disc at the full speed of the multiverter with no break in data. All samples are evenly spaced and the number of data points taken is limited only by the size of the disc. The maximum possible throughput rate is 80 kHz.

Equipment required is a minimum RTE system, an HP 2310 analog to digital converter, and an HP 2770 60 Hz or 50 Hz disc.

Assembly language, relocatable.

Contributed:
M.H. Kendall III
Wyle Laboratories

22336A, HP 1900 PROGRAMMABLE PULSE GENERATOR — FORTRAN CALLABLE

This BCS non-IOC driver for the HP 1900 Pulse Generator allows the user to program any number of units in the 1900 family — 1905, 1908, or 1917. Nine additional words of core are required for each unit.

Equipment required includes 4K and an HP 2752A Teleprinter, HP 14542A I/O Kit, and HP 1900/6936S Programmable Pulse Generator.

Assembly language, relocatable.

Contributed:
Gordon A. Greenley
HP, Colorado Springs Division

22337A, HP 1900 PROGRAMMABLE PULSE GENERATOR DRIVER — BASIC CALLABLE

This absolute modification to HP BASIC 20392A allows the user to program any number of HP 1900 Pulse Generators — 1905, 1908, 1917. Nine additional words are required for each generator.

Equipment required includes an HP 12566A Interface Kit, 8K, an HP 2752A teleprinter, and an HP 1900/6936S Programmable Pulse Generator.

Assembly language, relocatable.

Contributed:
Gordon Greenley
HP, Colorado Springs Division

22339A, DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER — FORTRAN CALLABLE

This FORTRAN callable driver for the HP 2320A Low Speed Analog-to-Digital Subsystem is self-configuring and operates on a minimum DOS. Through calls to the EXEC, the driver processes the channel number, converts it from binary to BCD and outputs it to the Scanner. The driver then takes a DVM measurement and returns to the EXEC.

Equipment required is an HP 2402A DVM, HP 2911A/B Crossbar Scanner, HP 12604B DSI, HP 12576B-01 DVM Program Interface, and an HP 12535A Scanner Program Interface.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22407A, HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC CALLABLE

These instrument system drivers modify HP BASIC 20392A to work with the HP 3360A Gas Chromatograph and add some special features. The compiler can be restarted with or without scratching the stored program, the switch register can be read from BASIC enabling the user to control the program, a driver controls up to 8 integrators, HP 3370/1A/B and reads data from them through the HP 18980A Multiplexor, data acquisition is performed in interrupt mode, and an 8, 16, or 40 bit output register can be used to control any device or signal lamp.

Assembly language, absolute.

Contributed:
Hans R. Biesel
HP, Germany/Boeblingen

22410A, RTE MULTIPROGRAMMER DRIVER (DVR61)

DVR61 is an RTE driver to operate the HP 3936A multiprogrammer. The driver performs three separate functions. A reset will reset all cards in the 6936 system. Reading from the device will input a word from the switch register of the 6936 to the calling program. This allows remote control of the users system. Finally, the write routine will output control and data words for control of devices connected to the HP 6936A. FORTRAN callable.

Assembly language, relocatable.

Contributed:
Michael Naughton
HP, Midwest Sales Region

20021C, PREPARE CONTROL SYSTEM (BUFF. ASR)

This program prepares the Basic Control System (BCS) from the BCS loader and IOC subroutine. The loader loads and links the relocatable programs, creates indirect addressing when necessary, and selects the loads library routines. The IOC subroutine processes I/O requests. The Prepare Control System also establishes the relationship among the I/O channel numbers, drivers, driver interrupt entry points, and unit reference numbers.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22338A, DISC BASIC EXECUTIVE

This absolute program operates in conjunction with HP BASIC 20392A to provide the added capability of user program storage and retrieval in a single terminal BASIC environment. This Disc Basic Executive is intended as a substitute for the standard Prepare Basic System. It is comprised of a system generator, I/O drivers, and a simple executive.

Equipment required includes 8K CPU, HP 2752A teleprinter, an HP 2870 moving head disc, and an HP 12578A or HP 12607A Direct Memory Access.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

24234A, 2000B TO 2000C CONVERSION (2883 DISC)

This program is used when a 2000B TSB system is being upgraded to a 2000C TSB with 2883 disc and it is desired to retain user programs and/or files on the new system. 2000A systems which are being updated to 2000C TSB systems must be converted to 2000B systems as an intermediate step, requiring complete 2000B software.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24235A, 2000B TO 2000C CONVERSION (2870 DISC)

This program is used when a 2000B TSB system is being upgraded to a 2000C TSB with 2870 disc and it is desired to retain user programs and/or files on the new system. 2000A systems which are being updated to 2000C TSB systems must be converted to 2000B TSB systems as an intermediate step, requiring 2000B software.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

20005B, BCS TAPE READER DRIVER (D.01)

This BCS driver controls punch-tape reader I/O operations.

Equipment required is one HP 2737, 2748, or 2758 Punch Tape Reader, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20006B, BCS TAPE PUNCH DRIVER (D.02)

This BCS driver controls tape punch I/O operations.

Equipment required is one HP 2753 Tape Punch, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20987C, DOS TAPE READER DRIVER (DVR01)

This DOS and DOS-M driver controls punch-tape reader I/O operations.

Equipment required is one HP 2737, 2748, or 2758 Punch Tape Reader, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22247B, DOS FAST TAPE READER DRIVER (DVR01)

This DOS and DOS-M driver controls tape reader I/O operations. The routine is similar to routine 20987C, except that it is three times as fast and includes a subroutine to ensure that interrupts from the time base generator are not missed. The driver operates by the non-interrupt method.

Equipment required is one HP 2737, 2748, or 2758 Punch Tape Reader, with interface kit. For DOS, revision B of the DOS minimum software configuration is required. For DOS-M revision A of the DOS-M minimum software configuration is used.

Assembly language, relocatable.

Contributed:
Fritz Joern
HP, Germany/Frankfurt

22264B, TELEX TO ASCII PHOTOREADER DRIVER

This driver reads five-level TELEX tapes and converts the code to ASCII. It replaces BCS driver D.01, HP 20005A, and can only be used with a modified HP 2737A photoreader. The call to the driver is identical to other IOC calls for ASCII operation.

Assembly language, relocatable.

Contributed:
Bjoern Lindberg
HP, Sweden/Stockholm

22353A, DOS/DOS-M PHOTOREADER DRIVER TO READ ABSOLUTE BINARY TAPES

This special DOS-M photoreader driver can read absolute binary format tapes as well as normal relocatable and source formats. The read is accomplished in FORTRAN through a special CALL EXEC. The tape is read into a user buffer area. To store the absolute binary into a user file, use HP 22354, "DOS-M Store Absolutes." This driver is particularly useful for reproducing absolute tapes.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

20819C, BCS MARK SENSE DRIVER, KIT 12602B, (D.15)

This BCS driver acquires data from an HP 2761A-007 Optical Mark Reader used with the HP 12602B interface kit. The routine performs any of three types of conversion on the data acquired. These conversion functions are Hollerith-to-ASCII, column-image binary, and packed binary. The packed binary conversion is used when reading assembler-produced or compiler-produced cards in relocatable binary format. The driver operates either with the Direct Memory Access option or without it.

Equipment required is one HP 2761A-007 Optical Mark Reader, with HP 12602B interface kit. The Direct Memory access option can also be used, if desired.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20821B, RTE MARK SENSE DRIVER, KIT 12602B, (DVR15)

This RTE driver acquires data from an HP 2761A-007 Optical Mark Reader used with the HP 12602B interface kit. The routine performs any of three types of conversion on the data acquired. These conversion functions are Hollerith to ASCII, column-image binary, and packed binary.

Equipment required is one HP 2761A-007 Optical Mark Reader, with HP 12602B interface kit, and the Direct Memory Access option.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24178A, 4K SIO HP 2891A CARD READER DRIVER

This driver processes requests for input from the HP 2891A Card Reader. The driver is unbuffered, non-interrupt, and is used on 2114-15-16 with 4K of memory. The 12882 Card Reader Interface is required.

Assembly Language

HP supported:
Data Systems Development Division (Cupertino)

24179A, 8K SIO HP 2891A CARD READER DRIVER

This driver processes requests for input from the HP 2891A Card Reader (with 12882 Card Reader Interface). The driver is unbuffered, non-interrupt, and is used on 2114-15-16 with 8K of memory.

Assembly language

HP supported:
Data Systems Development Division (Cupertino)

24180A, 16K SIO HP 2891A CARD READER DRIVER

The driver processes requests for input from the 2891A Card Reader (with 12882 Card Reader Interface). The driver is unbuffered, non-interrupt, and is used on 2114-16 with at least 16K of memory.

Assembly language

HP supported:
Data Systems Development Division (Cupertino)

24181A, BCS HP 2891A CARD READER DRIVER (D.11)

The BCS driver processes requests for input from the HP 2891A Card Reader (with 12882 Card Reader Interface) under interrupt or DMA control.

Assembly language

HP supported:
Data Systems Development Division (Cupertino)

24182A, DOS HP 2891A CARD RDR. DRVR (DVR11)

This DOS/DOS-M driver processes requests for input from the HP 2891A Card Reader (with 12882 Card Reader Interface).

Assembly language

HP supported:
Data Systems Development Division (Cupertino)

24224A, RTE HP 2891A CARD READER DRIVER (DVR11)

Provides input/output capabilities for the HP 2891A Card Reader under the Real-Time Executive. The HP 12882 Card Reader Interface is required.

Assembly language

HP supported:
Data Systems Development Division (Cupertino)

22258A, HP 2767 LINE PRINTER BASIC DRIVER

This driver adds high speed printout capabilities to HP BASIC 20392. Programs may be listed, or data may be output from a running BASIC program using the normal LIST or PRINT commands. A switch register setting controls the optional line printer or teleprinter output.

Assembly language, absolute.

Contributed:
Bjoern Lindberg
HP, Sweden/Stockholm

22399A, HP 2778/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC

This patch provides line printer capability for the HP 2007 Educational BASIC system (HP 24160-60001 rev A). Two versions of the patch permit using either the HP 2767A or HP 2778A line printer. Requests for STOP message, READY message, line feeds, question mark (input statement) and "/" (escape) are routed to both the teletype and the line printer. In addition the CR/LF associated with system commands and input statements are changed to line feed only in order that these appear on both TTY and printer. The SCRATCH system command, when issued in batch mode (CARD), causes a page eject in order to provide list output separation. All other data is printed only on the line printer (i.e., PRINT statements). When switch 15 is "OFF", all output is directed to the teletype.

Assembly language, absolute.

Contributed:
David R. McClellan
HP, Southern Sales Region

22408A, BASIC CALLABLE LINE PRINTER DRIVER

This routine provides the HP BASIC System 20392A with a line printer capability for the HP 2778A. A special technique of line printer buffering allows the HP 2778A to operate at maximum speed and utilize the full line printer carriage width.

Assembly language, absolute.

Contributed:
Ed Doust
HP, Corporate

22409A, EDUCATIONAL BASIC LINE PRINTER OUTPUT

This modification to Educational Basic allows the Hewlett-Packard 2767A Line Printer to be used as the list device on the Hewlett-Packard 2007A Educational System.

Optionally, the line printer or teleprinter may be chosen as the list output device through a Switch register setting. Complete compatibility with Educational BASIC is maintained including flexibility for core specification. With this modification the throughput of Educational BASIC in the batch mode is significantly increased and is limited only by the speed of the card reader.

Assembly language, absolute.

Contributed:
Warren Nelson
HP, Canada/North Burnaby

22411A, A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER

This SIO driver is designed to operate the A.B. Dick 9600 Videojet Printer. It interfaces HP 2114, 2115, 2116 Series computers using the HP 12566 micro-circuit interface card with positive true logic.

This driver is designed to operate only with the line printer compatible teleprinter driver. The punch portion of the teleprinter driver is overlaid by the Videojet driver. Hence, a punch driver must also be present in the software configuration with this driver when punching is required.

Equipment required includes an A.B. Dick 9600 Videojet line printer and an HP 12566 microcircuit interface card.

Assembly language, absolute.

Contributed:
Bill Alexander
HP, Midwest Sales Region

24164B, 4K SIO HP 2767 LINE PRINTER DRIVER

Used by 4K computers, this SIO driver controls output operations for an HP 2767 Line Printer.

Equipment required is one HP 2767 Line Printer, with interface kit.

Assembly language, absolute

HP supported:
Data Systems Development Division (Cupertino)

24165B, 8K SIO HP 2767 LINE PRINTER DRIVER

Used by 8K computers, this SIO driver controls output operations for an HP 2767 Line Printer.

Equipment required is one HP 2767 Line Printer, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24166B, 16K SIO HP 2767 LINE PRINTER DRIVER

Used by 16K or larger computers, this SIO driver controls output operations for an HP 2767 Line Printer.

Equipment required is one HP 2767 Line Printer, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24167B, BCD HP 2767 LINE PRINTER DRIVER (D.16)

This BCS driver controls output operations for an HP 2767 Line Printer.

Equipment required is one HP 2767 Line Printer, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24168B, DOS HP 2767 LINE PRINTER DRIVER (DVR12)

This DOS and DOS-M driver controls output operations for the HP 2767 Line Printer. Features include line spacing, paging, and status checking.

Equipment required is one HP 2767 Line Printer, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24171B, BCS HP 2778A LINE PRINTER DRIVER (D.12)

This BCS driver controls output operations for the HP 2778 or 2778-001 Line Printer.

Equipment required is one HP 2778 Line Printer, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20072C, VERIFICATION: DACE AXEPT

This verification program contains a working example of Data Acquisition and Control Executive tasks which will operate in any of the following HP equipment systems: 2310A, 2310B, 2310C, 2320A, 2322A, 2323A.

Equipment required is one HP 12539 Time Base Generator.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

22361A, DOS-M BINARY FILE DATA ACQUISITION

This program provides continuous analog data acquisition from a multiplexed ADC to a DOS-M Binary File. Six channels of analog information are sampled with the HP 2310B Multiverter under control of the HP 12539A time base generator using sampling intervals of one millisecond or greater. The digitized information obtained at up to 6000 samples per second may be fed continuously to a CRT display or to a DOS-M binary file on a 2870A disc store.

The main Fortran program interfaces the operator obtaining disc labels, file name and sampling intervals — before calling the Assembly language subroutine which handles the continuous analog data acquisition and display or storage.

Equipment required includes 16K core, an HP 2870 disc, an HP 2310B/12554A-M2 multi-channel analog to digital converter, an HP 12539A time base generator, and an HP 12555 dual digital to analog converter.

FORTRAN IV/Assembly language, relocatable.

Contributed:
Neal Kelly
HP, Eastern Sales Region

22380A, HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O

The BASIC Driver System with binary data I/O enables the user to control the HP 80501B Audio Data Processor by means of conversational Hewlett-Packard BASIC language. It modifies standard HP BASIC 20392 and adds the following features: The compiler can be restarted with or without deleting the stored program; the switch register can be read from BASIC language level enabling the user to control the actions of the program; the teletype interrupt mode can be switched off or on from BASIC enabling the teletype to read data from paper tape because the jump to the STOP-READY point is inhibited; binary data on paper tape can be read or punched from BASIC language level.

BASIC callable drivers for the following devices or interfaces are included: HP 12539A Time base generator (providing "elapsed time" and/or "time-of-day"); HP 12555A D-to-A converter (with 8 service routines for X-Y display); HP 12551B Relay output register; HP 12564A A-to-D Converter; HP 8064A Real Time Analyzer with or without HP 8065A extension (controlling the analyzer and reading spectra). The BASIC Driver System includes a configurator that can change the configuration or delete routines that are not required. Exhaustive diagnostic messages are printed in case of hardware trouble or programming errors.

Assembly language, absolute.

Contributed:
Hans Biesel
HP, Germany/Boeblingen

29002A, BCS COMPUTER TO COMPUTER DATA TRANSFER DRIVER (D.65)

D.65 is a relocatable assembly language driver for the HP 12665 Computer Serial Interface Card. The HP 12665 Interface provides a means of communications between two computers, each computer having its own HP 12665 Interface and driver.

D.65 can communicate with either another BCS D.65 Driver or a RTE DVR.65 Driver. FORTRAN/ALGOL READ or WRITE Statements are not allowed with D.65.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

29004A, BCS COUPLER TO COMPUTER DATA TRANSFER DRIVER (D.66)

D.66 is a relocatable assembly language driver that transfers data between the HP 2570A/2575A Coupler/Controller interfaced with a HP 12813 card and a HP 2100 family computer interfaced with a HP 12665 card. Any number of HP 2570A/2575A Coupler/Controllers can be controlled by D.66. FORTRAN/ALGOL READ or WRITE statements can be used.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

20073C, BCS 5610 A-TO-D DRIVER, NON-DMA, (D.56)

This BCS driver acquires measurements from an HP 2311A High-Speed Data Acquisition Subsystem. Data is acquired in the form of 10-bit words at a rate up to 48 kHz (for 2114- or 2115-series computers), or up to 60 kHz (for 2116-series computers). The routine operates in either of two ways: single-channel monitor, or sequential scan of 2 to 16 data channels. Program 20074A is used for furnishing parameters to the driver from FORTRAN or ALGOL programs. The 10-bit words acquired are forwarded unchanged to the calling program. The faster, DMA version of this routine is program 20093.

Equipment required is one HP 2311A High-Speed Data Acquisition Subsystem.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

20093C, BCS 5610A A-TO-D DRIVER, DMA, (D.56A)

This BCS driver acquires measurements from an HP 2311A High-Speed Data Acquisition Subsystem. Data is acquired in the form of 10-bit words at a rate up to 100 kHz. The routine operates in either of two ways: single-channel monitor, or sequential scan of 2 to 16 data channels. Program 20074A is used for furnishing parameters to the driver from FORTRAN or ALGOL programs. The 10-bit words acquired are forwarded unchanged to the calling program. The non-DMA version of this routine is program 20073.

Equipment required is the Direct Memory Access option for the computer, and one HP 2311A High-Speed Data Acquisition Subsystem.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

20297D, RTE 2310/2311 SUBSYSTEM DRIVER (DVR56)

This RTE driver acquires measurements from an HP 2310A A/D Converter, 2310B Multiverter, 2310C Miniverter System, or 2311A High-Speed Data Acquisition Subsystem. A control word from the calling program specifies the data channel or channels to be sampled.

HP supported:

Automatic Measurement Division

22281A, MINIVERTER DRIVER

This program acquires data from analog signals through the Hewlett-Packard HP2310C Miniverter system. The system has a capacity of 128 multiplexed input channels which time-share an analog-to-digital converter. The output of the ADC is stored in a buffer which can be read into memory. A possible sampling rate of 20 Khz can be achieved in monitor mode. It differs from D.76 and MCONV in that it is loaded as a subroutine at run time, requires half as much storage, and controls the sampling speed.

Assembly language, relocatable.

Contributed:
Joseph L. Lau
Airesearch Manufacturing Co.

22304A, HP 5610A ANALOG-TO-DIGITAL DRIVER – FORTRAN CALLABLE

There are three routines in this package; two drivers and a Time Base Generator subroutine which delays execution of a program in the BCS environment. The first driver is designed to command a single reading from the A-D converter and return to the calling program. The second driver is designed to command readings from a number of different channels where the rate is controlled by the time base generator.

Assembly language, relocatable.

Contributed:
Kile Baker
Montana State University

22331A, DOS HP 2322A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER

This FORTRAN callable HP 2322 A-D Subsystem Driver is self-configuring and operates under a minimum DOS system. Through calls to the EXEC it processes the channel number converting binary to BCD, and outputs it to the scanner. A DVM measurement is taken and control is returned to the EXEC.

Equipment required is an HP 2401C DVM, HP 2911A/B Crossbar Scanner, and HP 12604B DSI, an HP 12533A DVM Program Interface, and an HP 12535A Scanner Program Interface.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22217B, HP 2331A X-Y DISPLAY DRIVER — BASIC CALLABLE

This driver, used by the HP 20392 BASIC Operating System, sets up CRT displays on an HP 1300A Large Screen Display. The X and Y axes are plotted, if desired.

Equipment required is one HP 2331A X-Y Display Subsystem, consisting of an HP 1300 X-Y Large Screen Display and a dual D/A converter interface kit.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22253A, OSCILLOSCOPE PLOTTING SUBROUTINE

This routine allows use of a standard oscilloscope for displaying data. A set of X, Y axes is displayed on each plot and an accompanying message is on the teleprinter indicating the value of the origin and the scope scale factor in user units per division. Scaling information can be included in the call or it can be computed in the subroutine. FORTRAN-callable.

Assembly language, relocatable.

Contributed:
John R. Lorch
Naval Weapons Center

22263A, PLOT, RELAY, WAIT

These routines provide point or line plotting capability to an X-Y Recorder. PLOT controls the analog recorder, RELAY controls the pen by opening and closing relays, or outputting the number of the switch to be changed to the relay register (this can affect any or all of the switches in the relay register), while WAIT provides necessary time delays. FORTRAN callable.

Equipment required includes an HP Analog X-Y Recorder modified to provide external pen lowering and raising, a dual channel 8-bit digital-to-analog interface card, and a 16-bit relay register card (non-interrupt or interrupt).

Assembly language, relocatable.

Contributed:
Kile Baker
Montana State University

22279A, BASIC PLOT SUBROUTINES

This series of absolute assembly language subroutines operate under the HP 20392A BASIC operating system to control a simple X-Y recording system. The six subroutines are accessed through a CALL statement to initialize channel numbers for the dual D-A board and relay output register board, set X-scale or Y-scale values, plot an (X,Y) coordinate by either a straight line or point plot, raise or lower the plotter pen, and generate a delay while the controls on the X-Y recorder are being adjusted.

Equipment required is one HP 2752A teleprinter, an HP 12555A Dual Channel D-A Converter, an HP 12554A 16-bit Relay Register Interface Card, and an HP X-Y Analog Recorder.

Assembly language, absolute.

Contributed:
John S. Shema
Montana State University

22291B, DOS/DOS-M HP 2331 X-Y DISPLAY SUBSYSTEM DRIVER

When called from FORTRAN or Assembler user programs, this set of routines operates the HP 2331 subsystem under DOS or DOS-M. SCOPE routines control the X-Y display, CHAR routines generate and display ASCII characters, and GRAPH routines display a set of data values. A user-defined buffer provides for image refresh every 20 milliseconds. Calls are compatible with BCS HP 2331 software.

FORTRAN II/Assembly language, relocatable.

Contributed:
Fritz Joern
HP, Germany/Frankfurt

22315A, CONTINUOUS DISPLAY OR ARRAY DATA ON ANALOG X-Y SCOPE

This FORTRAN callable I/O subroutine enables the continuous display of a data array onto an X-Y oscilloscope via a dual 8-bit digital-to-analog converter. Up to 2000 points can be refreshed every 20 μs under interrupt control.

Equipment required is 8K core, an HP 12555A dual digital to analog converter, and an HP X-Y oscilloscope and interconnection cable.

Assembly language, relocatable.

Contributed:
John Nosler
University of Oregon

22316A, VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE

This FORTRAN callable I/O subroutine displays array data via a dual 8-bit digital to analog converter onto an X-Y oscilloscope under interrupt control. 256 points of a buffered array are displayed consecutively. Calling parameters allow the programmer to pan across the data, specify the channel of a vertical cursor, and turn off the cursor.

Equipment required is 4K core, an HP 12555A dual digital to analog converter, and an HP X-Y oscilloscope and interconnection cable.

Assembly language, relocatable.

Contributed:
John Nosler
University of Oregon

22318A, HP 1331C STORAGE SCOPE DRIVER — BASIC CALLABLE

This routine operates with the HP BASIC system 20392A to display data on the HP 1331C Storage Scope. The MAT statement has been replaced by DISP for 'display.' DISP is used like PRINT. A CALL statement erases the screen.

Equipment required includes an HP 12555A dual digital to analog converter.

Assembly language, absolute.

Contributed:
Bjoern Lindberg
HP, Sweden/Stockholm

22379A, SIO LIST OUTPUT TO A STORAGE SCOPE

This driver will provide list output to a storage scope or teleprinter using standard SIO modules. It may be used in an 8K or 16K environment by assembling with an N or Z option respectively.

Equipment required includes an HP 12555A Dual D/A Converter Output Card, and a Storage Scope with remote Z-axis and erase control.

Assembly language, absolute.

Contributed:
James L. Miller
HP, Medical Electronics Division

22390A, HP 7004 X-Y RECORDER LIBRARY

This set of routines displays points, straight lines, or arcs of a circle or parabola by interpolating between points on an HP 7004 X-Y Recorder. Characters or numbers are displayed in integer or floating point format. Any program which RUNs in the HP 2331A subsystem environment will RUN without modification in the HP 7004 environment using this library.

These subroutines are FORTRAN or assembler callable and can be used with any standard Hewlett Packard relocatable library.

FORTRAN II/Assembly language, relocatable.

Contributed:
Professor Sergio Marsich
Istituto di Costruzioni Navali
Universita di Genova

22391A, HP 1331C SIO SCOPE DISPLAY DRIVER

This driver routine replaces the TTY SIO Driver when an HP 1331C X-Y Display is available. It provides faster output than the TTY when hard copy is not necessary.

Equipment required includes 8K or 16K core, an HP 1331C option 016 X-Y Display, and an HP 12555A D/A Interface Card.

Assembly language, absolute.

Contributed:
Robert O. Smith
University of Mississippi Medical Center

23900A, DOS/DOS-M STORAGE SCOPE DRIVER (DVR46, $EX50)

This driver for a DOS or DOS-M system writes alphanumeric characters on a storage type oscilloscope or scan converter. It is called by a standard write request.

Hardware required is an HP 5661A Display Subsystem or an HP 1331C Storage Scope with remote erase capability and an HP 12555A D/A Interface card.

HP supported:
Medical Electronics Division

22216B, HP 2870A DISC DRIVER — BASIC CALLABLE

This driver, used with the HP 20392 BASIC Operating System, controls I/O operations with an HP 2870A Moving Head Disc Unit.

Equipment required is the Direct Memory Access option for the computer, and one HP 2870A Moving Head Disc Unit with interface kit, disc controller, power supply, and cabinet.

Assembly language, absolute.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22225B, HP 2870A DISC DRIVER — FORTRAN CALLABLE

This driver controls I/O operations with an HP 2870A Moving Head Disc Unit.

Equipment required is the Direct Memory Access option for the computer, and one HP 2870A Moving Head Disc Unit with interface kit, disc controller, power supply, and cabinet.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22301A, HP 2870A CARTRIDGE DISC MEMORY DRIVER — FORTRAN CALLABLE

This FORTRAN callable driver accepts requests to perform read, write, initialize data, check data, clear, and status operations on the HP 2870A Cartridge Disc Memory in a BCS environment. The driver is written so as to permit concurrent I/O operations by utilizing the interrupt system. DMA channel assignments are dynamic, but I/O select codes are assigned at assembly time. The driver operates multiple drives on a single controller by accepting a physical unit number as a parameter in the calling sequence.

Assembly language, relocatable.

Contributed:
Dave McClellan
HP, Southern Sales Region

22312A, BCS 2774/2771 DRUM DRIVER

This drum driver allows the user to configure BCS for use with the HP 2774/2771 drum. It must be loaded as an external driver at load time to make its three entry points available to the programmer. It is FORTRAN or Assembler callable.

Assembly language, relocatable.

Contributed:
Enrico Mariani
HP, Italy/Milan

24156B, DOS-M 2870 DISC DRIVER (DVR31)

This DOS-M driver controls I/O operations with the HP 2870A Moving Head Disc Unit.

Equipment required is the Direct Memory Access option for the computer, and one HP 2870A Moving Head Disc Unit with interface kit, disc controller, power supply, and cabinet.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

13021A, 8K SIO HP 7970 MAGNETIC TAPE DRIVER

Used by 8K computers, this SIO driver controls I/O operations for up to four HP 7970 Magnetic Tape Units.

Equipment required is one to four HP 7970 Magnetic Tape Units, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

13022A, 16K SIO HP 7970 MAGNETIC TAPE DRIVER

Used by 16K computers, this SIO driver controls I/O operations for up to four HP 7970 Magnetic Tape Units.

Equipment required is one to four HP 7970 Magnetic Tape Units, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

13023B, BCS HP 7970 MAGNETIC TAPE DRIVER (D.23)

This BCS driver controls I/O operations for up to four HP 7970 Magnetic Tape Units.

Equipment required is one to four HP 7970 Magnetic Tape Units with interface kit. If the computer is of the HP 2114 series, or if the magnetic tape unit has the 45 inch-per-second option, the Direct Memory Access option for the computer is also required.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Mountain View)

13026B, BCS HP 7970 7-TRACK MAGNETIC TAPE DRIVER (D.24) WITHOUT DMA

This BCS driver controls I/O operations for up to four HP 7970 7-Track Magnetic Tape Units.

Equipment required is one-to-four HP 7970 7-track tape units with interface kit 13182A. Direct memory access is not available.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Mountain View)

13027B, BCS HP 7970 MAGNETIC TAPE DRIVER (D.25) WITH DMA

This BCS driver controls I/O operations for up to four HP 7970 7-Track Magnetic Tape Units.

Equipment required is one-to-four HP 7970 7-track tape units with interface kit 13182A. Direct memory access is required for tape speed greater than 37.5 ips.

Assembly language, relocatable.

HP supported
Data Systems Development Division (Mountain View)

13029A, 8K SIO HP 7970 7-TRACK MAGNETIC TAPE DRIVER

Used by 8K computers, this SIO driver controls I/O operations for up to four HP 7970 Magnetic Tape Units.

Equipment required is one to four HP 7970 Magnetic Tape Units, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

13030A, 16K SIO HP 7970 7-TRACK MAGNETIC TAPE DRIVER

Used by 16K computers, this SIO driver controls I/O operations for up to four HP 7970 Magnetic Tape Units.

Equipment required is one to four HP 7970 Magnetic Tape Units, with interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

22239A, HP 7970 MAGNETIC TAPE DRIVER — BASIC CALLABLE

This driver performs three functions on the 7970 through separate CALLs from HP BASIC 20392A. One call performs a binary write of a given length on a particular magnetic tape unit, 0 through 3. The second call does a binary read and the third positions the tape, writes an EOF or an EOR gap.

Assembly language, absolute.

Contributed:
Michael Naughton
HP, Midwest Sales Region

22270C, ALGOL OPERATING SYSTEM FOR MTS

These two routines enable the ALGOL user to compile, load, and execute ALGOL programs entered through any standard device without having to punch object code on paper tape under MTS. If the source program is entered from a keyboard device using MTS overlay program ONLINE, then punching tape, marking cards, etc. can be eliminated entirely. By using switch register options, simultaneous compilation and source/assembly listings can be obtained. Loading and execution of the compiled program is accomplished through standard MTS directives.

Assembly language, absolute.

Contributed:
Henry Gibbs-Rogers
Computing, Etc.

22319A, DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER

This HP 2020 Magnetic Tape driver operates under a standard DOS or DOS-M system to handle input/output transfers and special control functions. All communication with the driver is through calls to EXEC. They are identical to HP 3030 calls except that binary transfer requests are rejected by the driver.

Assembly language, relocatable.

Contributed:
Dennis I. Smith
Montana State University

20001C, 4K BCS RELOCATING LOADER

Used by 4K computers, this BCS loader reads relocatable binary programs from punched tape. The address portion of each memory reference instruction and each jump instruction is converted to an absolute address, and page linkages are established. All instructions are placed in core storage at addresses assigned by the loader. The loader will not operate on binary programs derived from ALGOL.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20018G, BCS RELOCATING LOADER

Used by 8K or larger computers, this BCS loader reads relocatable binary programs from punched tape or magnetic tape. The address portion of each memory reference instruction and each jump instruction is converted to an absolute address, and page linkages are established. All instructions are placed in core storage at addresses assigned by the loader.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20925C, DOS RELOCATING LOADER

This DOS loader, used only by computers of the 2116 series, reads relocatable binary programs from punched tape, magnetic tape, or disc. The input can also be provided by a compiler or assembler. The address portion of each memory reference instruction and each jump instruction is converted to an absolute address, and page linkages are established. All instructions are placed on the disc at addresses assigned by the loader.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22223C, LOADER BOOTSTRAP

This program provides a simple method of entering a basic binary loader or a basic binary disc loader. First, twelve instructions are entered into the switch register. These instructions indicate the configuration of the computer system, and also serve as a driver for acquiring the bootstrap tape. After the tape has been read, the basic binary loader or basic binary disc loader is ready for use in memory. The program includes preparation of a check sum to detect tape reader errors. A test of the loader protect switch is also made.

Assembly language, absolute.

Contributed:
Fritz Joern
HP, Germany/Frankfurt

22297A, OFFLINE RELOCATING LOADER

This relocating loader program runs in a minimum 4K SIO system; it accepts as input relocatable object programs produced by the assembler or compilers and produces as output an absolute binary tape (with external references resolved) for any other specified target computer with memory up to 32K. Lower and upper base page, memory, and upper common bounds may be specified on the teletype at RUN time, and are independent of the executing machine size.

The programmer who normally codes in absolute assembly language and does his own I/O or uses an SIO system will find this offline loader useful. He can code in relocatable format in a page free manner, since the loader will establish his base page linkages. Note, however, that neither the formatter nor .IOC. are contained within this "loader", but they can be loaded, relocated, and linked by the offline loader to produce a complete program. Relocated programs can even be made to work in an SIO environment by substituting OCT 114102 for JSB 102B,I (for example). A FORTRAN program which does I/O without the formatter can thus gain 1 to 1-1/2 K of core space.

Assembly language, absolute.

Contributed:
Don Mactaggart
Canadian Marconi Co.

22342A, DOS-M "HARDWARE" BOOT

This program allows the user to boot up a DOS-M system with an HP 2870 or HP 7900 disc from the hardware protected area of memory. Thus, there is no need to load in the normal paper tape boot. (The paper tape BBL is of course destroyed.)

Assembly language, absolute.

Contributed:
Jerry W. Allen
HP, Neely Sales Region

22344A, "ON-LINE" SYSTEM LOAD FOR MOVING-HEAD RTE

This program allows the user to start up a Moving-Head RTE System from another RTE System (with a Fixed-Head or Moving-Head Disc) within the same hardware configuration without halting the computer and loading a paper tape bootstrap. The I/O channels of the Moving-Head Disc, the subchannel number and the starting track number of the system to be started are specified in the program directive. A typical directive might be "ON,RTEM,22,1,100".

Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22345A, "ON-LINE" MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS

This program allows the user to start up a Moving-Head RTE System from a DOS or DOS-M System within the same hardware configuration without halting the computer and loading a paper tape bootstrap. The I/O Channels of the Moving-Head Disc, the subchannel number and the starting track number of the system to be started are specified in the program directive. A typical directive might be ":PR,RTEM,22,1,100".

Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22349A, DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS

This program allows the user to start up a DOS-M System from another DOS-M or DOS System within the same hardware configuration without halting the computer and loading a paper tape bootstrap. The I/O channels of the Moving-Head Disc and the subchannel number are specified in the program directive. A typical directive might be ":PR,DOSM,22,1". This program works in a system with or without memory protect.

Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22350A, DOS-M BOOTSTRAP PROGRAM FROM RTE

This program allows the user to start up a DOS-M System from an RTE System (with a Fixed-Head or Moving-Head Disc) within the same hardware configuration without halting the computer and loading a paper tape bootstrap. The I/O channels of the Moving-Head Disc and the subchannel number are specified in the program directive. A typical directive might be: "ON,DOSM,22,1".

Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22357A, MTS BOOT FROM DOS-M

This program allows a user in the DOS-M environment to boot in the magnetic tape system. Thus, with the DOS-M boot program on magnetic tape he can then switch back to DOS-M. The end result being the elimination of loading paper tape boots and a much smoother operator procedure. Requires 16K core memory (but may be modified for 8K), and HP 22354, DOS-M Store Absolutes.

Assembly language, relocatable.

Contributed:
Jerry W. Allen
HP, Neely Sales Region

20598C, DOS ASSEMBLER

Used by the DOS Operating System, this assembler converts assembly-language source programs to relocatable or absolute binary form. The relocatable binary programs run under the DOS, DOS-M, RTE, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20599C, DOS FORTRAN COMPILER

Used by the DOS Operating System, this compiler converts FORTRAN II source programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the DOS, DOS-M, RTE, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20874D, RTE ASSEMBLER

Used by the RTE Operating System, this assembler converts assembly-language source programs to relocatable or absolute binary form. The relocatable binary programs run either under the DOS, DOS-M, RTE, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20875E, RTE FORTRAN COMPILER

Used by the RTE Operating System, this compiler converts FORTRAN II source programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the RTE, DOS, DOS-M, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22201D, PACIFIC UNION COLLEGE MULTITERMINAL HP BASIC SYSTEM

This program system is an interpreter which allows up to eight users to simultaneously employ the facilities of a large subset of HP 20392 BASIC Operating System. As well as permitting multiple-user access, other differences from the HP 20392 program system are as follows:

a. No matrix statements.

b. No WAIT statements.

c. No BYE statements.

d. GOSUB's may be nested to any depth.

e. Syntax error typeouts have no line numbers.

No log-on or log-off procedures are required, and no identity codes are used. Allocation of available core storage can be made to each user at the time of system configuration.

Equipment required is 8K of storage.

Assembly language, absolute.

Contributed:
Dowell Martz and William Tyler
Department of Physics
Pacific Union College

22255D, MSU MULTI-TERMINAL HP BASIC SYSTEM WITH CARD READER CAPABILITY

This multi-terminal HP BASIC system with card reader capability is an expandable low cost "time-share" system requiring an HP 2116B computer with 16K, two to five teleprinters with interface, and a time base generator. The optional card reader (HP 2761-007 Mark-Sense Card Reader for Educational Basic) can be used for input on one of the four user ports.

The system provides 8500 words of memory which can be divided among the four users, automatic logging and accounting of users for unattended operation, and a message command for signalling the computer operator. User code words for sign-on prevent unauthorized use. A RENUMBER command resequences statements, a PTAPE command loads user-developed or system library programs from the photoreader, CALL and WAIT statements are deleted, and all other user commands are identical to those of HP single-terminal BASIC, 20392.

Assembly language, absolute.

Contributed:
N. K. Shrauger
Montana State University

22292B, ABSOLUTE OBJECT DECODER

DECODE is a two-pass ALGOL program designed to produce a pseudo-source listing and/or tape complete with labels; the tape would assemble back to the original absolute. The inverse assembly would be relatively easy to edit into a functional equivalent of the original source. The generation of DEF, ABS, DEC, DEX, BSS, and OCT are not within the scope of this program.

ALGOL/Assembly language, relocatable.

Contributed:
Herb Shear and Ed Doust
HP, Scientific Instruments Division

22295A, BCS INTERPRETER FOR FLOATING POINT OPERATIONS

The interpreter achieves significant core savings for floating point operations at the expense of execution time by replacing all floating point library routines. Under BCS it accepts binary output from the special assembler included in this package which translates the seven additional opcodes required for interpretive floating point arithmetic. The special assembler is an unconfigured absolute binary tape which will operate in a 4K memory. The interpreter is of particular value to users with a minimum configuration.

Assembly language, relocatable.

Contributed:
Michel Virard
Canadian Marconi Company

22326A, DOS-M RELOCATABLE BASIC

Relocatable BASIC for DOS-M is essentially equivalent to Hewlett-Packard's single terminal BASIC system, HP 20392A. Two additional commands have been added to this version; PUNCH for high-speed punch output, and PLIST for line printer output. "LIST" generates output to a teleprinter or CRT. This version is non-EAU and cannot access the disc to SAVE user programs or data files.

Equipment required includes a 16K DOS-M, and optionally, an HP 2767 line printer.

Assembly language, relocatable.

Contributed:
Eugene Dement
Martin-Marietta Corporation

22327A, SNOBOL COMPILER FOR DOS/DOS-M

SNOBOL is a language translater designed for the manipulation of strings. Features of the language include symbolic naming of strings and pattern-matching. In addition to a basic set of primitive string valued functions, the system includes the facility for defining functions. These defined functions facilitate the programming recursive procedures.

Hewlett-Packard France SNOBOL extends the capabilities of SNOBOL3; decimal numbers of unlimited precision are allowed, and arithmetic expressions without parentheses are evaluated according to a hierarchy of operations. Dynamic allocation of the number of decimal digits to represent a number make it a practical business language.

Other applications of Hewlett-Packard France SNOBOL include typesetting, formatting, editing, searching, symbolic mathematics, text preparation, natural language translation, linguistics, and music analysis.

Assembly language, relocatable.

Contributed:
Paul Gavarini, Francois Gaullier, Francoise Mons
HP, Orsay/France

22385A, MACRO ASSEMBLER FOR THE HP 2100

This is a symbolic assembler with macro-instructions, generalized literals, extended inter-program linkage, and numerous other useful additions; it is intended to serve as a replacement for existing HP assembly programs. The source language is similar but not identical to that of the standard assembler. It may be assembled using the standard HP assembler.

This assembler functions in a standard SIO environment and requires 8K core.

Assembly language, absolute.

Contributed:
Robert A. Saunders
HP, Automatic Measurement Division

22389A, DOS-M EAU RELOCATABLE BASIC

Relocatable BASIC for DOS-M is essentially equivalent to Hewlett-Packard's single terminal BASIC system, HP 20392A. Two additional commands have been added to this version; PUNCH for high-speed punch output, and PLIST for line printer output. "LIST" generates output to a teleprinter or CRT. This version is EAU and cannot access the disc to SAVE user programs or data files.

A format for adding assembly language subroutines to be referenced by a CALL is included in this documentation.

Assembly language, relocatable.

Contributed:
Eugene Dement
Martin-Marietta Corporation

22396A, AN HP ASSEMBLER FOR THE IBM 360

HPA is a two pass assembler for the HP 2100 symbolic assembly language. It is written in IBM 360 assembly language for execution on the IBM System 360/67 under OS/360. HPA runs in a batch processing mode and can be used to obtain listings, error messages, cross reference tables, and object code for loading into the HP 2100 series computers. The program produces a binary output file to magnetic tape, disc, punched cards, paper tape, or any standard IBM output device.

360 Assembly language.

Contributed:
Dr. Harold Stone, James Peterson, & Ed Porter
Stanford University

24031B, EXTENDED ASSEMBLER, NON-EAU

Using SIO drivers, this assembler converts assembly-language source programs to relocatable or absolute binary form for execution by non-EAU computers. The translation is extended to include recognition of literals, to provide a listing of control commands, and to handle conditional or repeated source statements. The programs produced run under the BCS Operating System.

Equipment required is 8K of core storage.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24032B, EXTENDED ASSEMBLER, EAU

Using SIO drivers, this assembler converts assembly-language programs to relocatable or absolute binary form for execution by EAU-equipped computers. The translation is extended to include recognition of literals, to provide a listing of control commands, and to handle conditional or repeated source statements. The programs produced run under the BCS Operating System.

Equipment required is 8K of core storage.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24038B, 4K ASSEMBLER, NON-EAU

Intended for 4K computers and using SIO drivers, this assembler converts assembly-language programs to relocatable or absolute binary form for execution by non-EAU computers. The programs produced run under the BCS Operating System.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24039B, 4K ASSEMBLER, EAU

Intended for 4K computers and using SIO drivers, this assembler converts assembly-language programs to relocatable or absolute binary form for execution by EAU-equipped computers. The programs produced run under the BCS Operating System.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24044B, ALGOL COMPILER

Using SIO drivers, this compiler converts ALGOL programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the BCS Operating System.

Equipment required is 8K of core storage.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24129B, RTE/DOS ALGOL COMPILER

Used by the RTE, DOS, and DOS-M Operating Systems, this compiler converts ALGOL programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the DOS, DOS-M, RTE, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24158B, DOS-M ASSEMBLER

Used by the DOS-M Operating System, this assembler converts assembly-language programs to relocatable or absolute binary form. The relocatable binary programs run under the DOS-M, DOS, RTE, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24159B, DOS-M FORTRAN COMPILER

Used by the DOS-M Operating System, this compiler converts FORTRAN II programs to relocatable binary form. An assembly language listing is also produced. The programs produced run under the DOS-M, DOS, RTE, or BCS Operating system.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24170C, RTE/DOS FORTRAN IV COMPILER

Used by the RTE, DOS, and DOS-M Operating System, this compiler converts FORTRAN IV programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the RTE, DOS, DOS-M, or BCS Operating System.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24177A, RTE/DOS FORTRAN IV COMPILER (10K COMPILER AREA)

Used by the RTE, DOS, and DOS-M Operating System, this compiler converts FORTRAN IV programs to relocatable binary form. An assembly language listing is also provided. The programs produced run under the RTE, DOS, DOS-M, or BCS Operating System. The compiler demonstrates a decided increase in speed over program 24170. However, program 24177 requires 10K of core storage, and thus cannot be used by computers with small core-storage capacity. Features of program 24177 include a source program listing with page headings and line numbers, and a symbol listing which includes the name, address, type, usage, and location (local, common, dummy, or external) of all source-program symbols.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24246A, EXTENDED ASSEMBLER FLOATING POINT

Using SIO drivers, this assembler converts assembly-language source programs to relocatable or absolute binary form for execution by HP 2100 computers equipped with floating point hardware. The translation is extended to include recognition of literals, to provide a listing of control commands and to handle conditional or repeated source statements. The programs produced run under BCS control.

Assembly language, relocatable

HP Supported:
Data Systems Development Division (Cupertino)

24247A, 4K ASSEMBLER FLOATING POINT

This assembler, using SIO drivers, converts assembly-language source programs to relocatable or absolute binary form for execution by HP 2100 computers with the floating-point option. The programs produced run under BCS control.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22401A, RTE SELF SUSPEND ROUTINE

This routine allows a user to "program" a Suspend for a specified length of time in his applications program. If the calling routine was in the time list before suspension, it will be reinstated and rescheduled in the time list.

Assembly language, relocatable.

Contributed:
J. O. Askew
American Telephone & Telegraph Co.

29001A, RTE COMPUTER TO COMPUTER DATA TRANSFER DRIVER (DVR65)

DVR65 is a relocatable assembly language driver that interfaces the HP 12665 Computer Serial Interface Card to the HP 2005 RTE system. The HP 12665 card provides a means of communication between two computers. DVR65 is capable of communicating with any number of HP 12665 cards in the RTE system. DVR65 can communicate with either another RTE DVR65 driver or a BCS D.65 driver.

Assembly language, relocatable.

HP Supported:
Automatic Measurement Division

29003A, RTE COUPLER TO COMPUTER DATA TRANSFER DRIVER (DVR66)

DVR66 is a relocatable assembly language driver that transfers data between the HP 2570A/2575A Coupler/Controller (interfaced with a HP 12813) card and the HP 2005 RTE systems (operating in a HP 2100 family computer interfaced with a HP 12665 card. Any number of HP 2570A/2575A Coupler/Controllers can be controlled by DVR66.

Assembly language, relocatable.

HP Supported:
Automatic Measurement Division

29016A, REAL-TIME EXECUTIVE OPERATING SYSTEM

The Real-Time Executive (RTE) Operating System uses multiprogramming and priorities to schedule real-time and background programs that can be core-resident or disc-resident. RTE controls all I/O and interrupt processing, with the exception of special privileged interrupts, which can circumvent RTE for exceptionally rapid response.

Full information on the RTE Operating System is given in the publication *Real-Time Software* (HP order no. 02116-9139).

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

20201C, PLOTTER LIBRARY

Used by the BCS Operating System, these FORTRAN-callable routines perform the following functions, and display the results on a Calcomp Model 565 Plotter:

a. Scale Cartesian coordinates to a specified graph size.

b. Generate scaled X and Y axes for the graph.

c. Generate a curve for the graph, with symbols or data points marked.

Equipment required is one Calcomp Model 565 Digital Incremental Plotter, with interface kit.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

20810B, RTE/DOS PLOTTER LIBRARY

Used by the DOS, DOS-M, and RTE Operating Systems, these FORTRAN-callable routines perform the following functions, and display the results on a Calcomp Model 565 Plotter:

a. Scale Cartesian coordinates to fit a specified graph size.

b. Generate scaled X and Y axes for the graph.

c. Generate a curve for the graph, with symbols or data points marked.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22329A, SCIENTIFIC SUBROUTINE PACKAGE

This package of 64 scientific subroutines solves problems in polynomial operations, matrices, linear and non-linear equations, fourier analysis, and integration and differentiation. Additionally a uniform and normal random number generator and thirteen special functions are included. All routines are written in FORTRAN II and can be used with any Hewlett Packard 2100 family system. Some were adapted to HP FORTRAN II from existing scientific subroutines (IBM 360) and others were written at Hewlett Packard France.

FORTRAN II.

Contributed:
Paul Gavarini/Jean Arban
HP, France/Orsay

22362A, STACK ROUTINES

This set of subroutines allows an Assembly Language program to perform stack operations. The package contains the following routines: CLRST, PUSH, PULL and RMOVE. CLRST clears the stack by setting the upper limit for the number of items in the stack in the first location of the stack. It also sets the pointer in the second position to point to the first free location in the stack (which is the third word of the stack). The upper limit must be stack length-2. PUSH stores an item onto the stack and increments the pointer. RMOVE removes the top item from the stack by decrementing the pointer. The package serves as a tool for recursive calls of programs.

These subroutines may be configured into the user's system library under DOS or DOS-M. Error exits result in calls to the EXEC.

Assembly language, relocatable.

Contributed:
Erkki Anttila
Technical University of Helsinki/Finland

24150C, RTE/DOS RELOCATABLE LIBRARY, NON-EAU

This library contains subroutines which perform a wide variety of mathematical and utility operations. The subroutines are used with RTE, DOS, or DOS-M Operating System, and are intended for computers not equipped with EAU. The subroutines are called automatically by the assembler or by the FORTRAN or ALGOL compiler, and in many instances they can be called directly by the source program. A full description of each subroutine is furnished in the publication *Relocatable Subroutines* (HP order no. 02116-91780).

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24151C, RTE/DOS RELOCATABLE LIBRARY, EAU

This library contains subroutines which perform a wide variety of mathematical and utility operations. The subroutines are used with the RTE, DOS, or DOS-M Operating System, and are intended for computers equipped with EAU. The subroutines are called automatically by the assembler or by the FORTRAN or ALGOL compiler, and in many instances they can be called directly by the source program. A full description of each subroutine is furnished in the publication *Relocatable Subroutines* (HP order no. 02116-91780).

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24152A, RTE/DOS FORTRAN IV LIBRARY

This library contains subroutines which perform a wide variety of mathematical and utility operations. The subr outines are used with the RTE, DOS, or DOS-M Operating System. They are called automatically by the FORTRAN IV compiler, and in many instances they can be called directly by the source program. The library is used in addition to the appropriate RTE, DOS, or DOS-M relocatable library. A full description of each subroutine is furnished in the publication *Relocatable Subroutines* (HP order no. 02116-91780).

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24245A, HEWLETT-PACKARD COMMERCIAL SUBROUTINES

The Hewlett-Packard Commercial Subroutines provide solutions to business applications and make FORTRAN an easy and powerful commercial language.

FORTRAN/assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24248A, RTE/DOS RELOCATABLE LIBRARY — FLOATING POINT

This extensive library of mathematical and utility subroutines is used with RTE, DOS or DOS-M and run as an HP 2100A computer equipped with the floating-point option. The subroutines are called automatically by a non-floating point assembler or by the FORTRAN or ALGOL compiler.

FORTRAN/Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24249A, 4K BCS RELOCATABLE LIBRARY — FLOATING POINT

This extensive library of mathematical and utility subroutines is used with BCS on 4K HP 2100A computers equipped with the floating-point option. The subroutines are called automatically by a non-floating point assembler or the FORTRAN compiler.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24250A, BCS RELOCATABLE LIBRARY — FLOATING POINT

This extensive library of mathematical and utility subroutines is used with BCS on a HP 2100A computer equipped with the floating-point option. The subroutines are called automatically by a non-floating point assembler or by the FORTRAN or ALGOL compiler.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22273A, CLEAR JOB BINARY AREA IN DOS/DOS-M

This program clears the job binary area in DOS/DOS-M for further compile and load operations in the same job. It is particularly helpful when compilations with errors write rubbish on the job binary area.

Assembly language, relocatable.

Contributed:
Fritz Joern
HP, Germany/Frankfurt

22375A, REMOTE HP 2100 ACCESS TO A 32K DOS

This system allows up to 11 remote HP 2100 computers to access programs stored on a centrally located DOS system. All programs must be stored in absolute binary form. The remote computer may request a program transfer, a data transfer to a previously reserved data file on DOS, and the time of day. All other operations, such as program addition, program deletion, file reservation, etc. are performed by a DOS user program which is part of this package.

Equipment required includes a 32K DOS, an HP 2773A Drum, an I/O Extender, DMA, and EAU as the central computer. Up to eleven 4K remote computers may be interfaced using 2 microcircuit interface cards (HP 12566A), and 36 twisted-pair connecting cables up to 300 feet in length (HP 8120-1283).

FORTRAN IV/Assembly language, relocatable and absolute

Contributed:
Glen Worstell
HP, Loveland Division

22398A, RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING

RTE JOB PROCESSOR is a foreground disc resident routine for the HP 2005A, 2005B, or 2005C Real Time Executive which provides a primitive job control language for controlling the execution of programs from a batch device such as a card reader, mag tape or tape reader. The program accepts directives for job, statement, end job, pause, comment, logical source declaration, load and go assignment, schedule request, and job processor terminate.

Typical uses of this program might include compiling, loading, and executing a FORTRAN or assembly language program in the background of RTE, or running a series of programs to perform a specific task (either foreground or background).

Assembly language, relocatable.

Contributed:
David R. McClellan
HP, Southern Sales Region

A100, DATA HANDLING

A101, EDITING

22285C, CONVERSATIONAL DOS-M DISC FILE EDITOR

This program edits DOS-M user source files by instructions from the system teleprinter or batch device. Files or portions of files can be merged and lines may be deleted, inserted, or modified. All occurrences of a character string such as a label, a variable name, an array, etc. can be replaced by a new string using a single command.

The user is further aided by the flexibility of specifying the destination file if different from the source file, listing the current line or line number while editing, editing in a conversational mode, and the optional rescanning of the destination file.

Assembly language, relocatable.

Contributed:
Michael Sweet
University College of North Wales

22286A D H SYMBOLIC EDITOR

This absolute program is a flexible editor for FORTRAN and Assembler source programs. Operating characteristics are similar to the HP Editor, 20100, but include these special features; edit commands may be entered in any order and are not restricted to the ascending order of source statements affected; selected parts of the source programs may be edited and listed simultaneously; lines to be edited may be specified by label or line number; a hierarchy for performing edit operations is well-defined; and a scheme for editing the current edit file is provided for the non-typist programmer.

Assembly language, absolute.

Contributed:
B. R. Beadle
Giddings & Lewis Machine Tool Company

22371A, QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES

This program changes (') to ('') in DOS/DOS-M files. It requires DOS-M Word Oriented File Access and string lookup routine, HP 22277.

FORTRAN IV/Assembly language, relocatable.

Contributed:
Klaus Stamer
HP, Frankfurt/Germany

22393A, ON-LINE EDITOR

This editor program allows the user to prepare a symbolic file by entering it directly into available memory from the TTY. Alternatively, a file may be prepared off-line on paper tape and loaded into memory with a tape reader. Editing operations are conversational, and are performed on-line using the TTY. The procedures are similar to those used in constructing a "BASIC" program. Available editing operations include deleting, replacing, and inserting lines or series of lines. A limited degree of character editing is possible. The file or portions of it may be listed on the TTY (with or without line numbers), or punched out on either the TTY or a high speed punch. The program is coded in absolute assembly language, resides entirely on base page, and uses its own I/O drivers. One page of memory is reserved for address storage. The remaining available memory is used to store the symbolic file, two ASCII characters per word.

Assembly language, absolute.

Contributed:
Bruce T. Lucas
Naval Weapons Center

22272A, DISC/DRUM UTILITY

This absolute program under control of the system teleprinter accepts commands to save, restore, and verify information stored on the disc/drum with information stored on magnetic tape. It is useful for creating a disc/drum backup copy on magnetic tape. For efficiency, tape record length is the same as the track length. Selected sectors may also be listed in octal on the teleprinter.

Equipment required includes 16K memory, EAU, DMA, and HP disc or drum, and any HP magnetic tape drive.

Assembly language, absolute

Contributed:
John H. Welsch
HP Laboratories

22284A, DOS-M DUMP/RESTORE PROGRAM

This set of programs enables the user to save the contents of DOS-M subchannels on magnetic tape using either the 2870A (IOMEC), 2883A (ISS), or 7900A (HP) disc. The saved disc contents may later be restored to the same or different subchannels from magnetic tape. A feature is included to verify the magnetic tape file with the contents of the disc sub-channel.

FORTRAN II/Assembly language, relocatable.

Contributed:
Bill Williams
HP, Data Systems

22299A, DOS/DOS-M SOURCE STORAGE AND RETRIEVAL

This program allows the user to store and retrieve source files on magnetic tape under control of DOS or DOS-M. Unlike the :DU command, it writes all necessary end-of-file marks. Additionally, the user may write a file, purge a file, list a directory of files, search for a given file by file name and end execution. The search feature is followed by a return to the disc monitor, "@", so that a user may store ":ST,S" to disc. All files are named and dated. The program is self-configuring and requests all necessary parameters through the system console.

Assembly language, relocatable.

Contributed:
Richard Strauss
HP, Medical Electronics Division

22356A, PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M

Two separate programs store and retrieve "packed" source, relocatable, and absolute code on magnetic tape under DOS-M. Each record is packed with a maximum of 2048 words. Approximately 50 source programs can be stored on one 600' reel of tape. Each file contains one program and is labelled at the beginning. Input and output may be cards, paper, or disc.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

24228A, DOS-M/2000C TSB FILE HANDLER

The File Handler is used to input files or programs that have been dumped onto magnetic tape by a 2000C TSB system into a DOS-M environment. The program can also be used to dump files onto magnetic tape for input to TSB.

ALGOL and assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

24240A, 2000C TSB FILE INTERFACE PACKAGE

This routine accesses files (generated in a DOS-M system by the DOS-M/2000C TSB File Handler program, HP 24228A), records and data items without the need of maintaining relative sector numbers, end-of-file or end-of-record marks.

Assembly language, relocatable.

HP supported:
Data Systems Development Division (Cupertino)

22404A, SPACE SAVING ASCII STORAGE ROUTINES

This routine, used in the assembly language environment, handles ASCII string elements containing 8 characters. Usually such a string is stored in 4 computer words. Since the standard ASCII character set contains only 64 different characters (40 to 137 octal), these 8-bit characters are unnecessary. A string element containing 8 characters can be stored in 3 computer words, thus saving 25% of the memory space originally required.

This program consists of 2 routines. Routine 'COMPR' transfers a string element (8 characters) from a source block (4 words) to a destination block (3 words). Routine 'EXPND' inversely transfers a string element from a source block (3 words) to a destination block (4 words).

The calls to the routines can be easily chained thus transferring strings of character blocks.

Assembly language, relocatable.

Contributed:
Hans R. Biesel
HP, Germany/Boeblingen

A105, CODE/RADIX CONVERSION

22274A, 4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE

These two routines convert 4-2-2-1 BCD data to binary. The data is read by the supported driver, DVR40 from a DSI card connected to a five-digit counter. Input is five digits, twenty bits, stored in two words; output is a two-word floating point number. The range and function returned by some instruments are ignored. It can be easily modified to convert data from an eight-digit counter. FORTRAN-callable.

Assembly language, relocatable.

Contributed:
M. H. Kendall III
Wyle Laboratories

22041E, PUNCHED TAPE DUPLICATOR

This independent program furnishes a reliable method for copying punched tapes. Either source-language tapes or binary tapes can be duplicated. As a tape original is read into core storage, the checksum is verified. Verification of a duplicated tape against the tape image in core storage also is possible.

The program can combine two or more punched tapes into a single tape, with or without a four feed-hole separation between data from different tapes. A configured tape can be produced from an unconfigured original. As an additional function, a bootstrap loader tape can be punched, duplicating the loader which is in core storage.

Core storage capacity of the computer can be of any magnitude. However, for duplicating lengthy tapes 16K or more may be required. An error printout is furnished if a tape exceeds the core storage capacity. During the reading of a tape original, a countdown in the B-register illustrates the amount of core storage available for the remainder of the tape image. When punching is taking place, the program halts if end-of-tape is detected.

For reading and punching, either high-speed tape reader and punch units can be employed, or the corresponding units in the teleprinter can be used.

Assembly language, absolute.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22180C, FAST PUNCH VERIFY

"Fast" Punch/Verify permits rapid duplication, verification, and comparison of paper tapes punched in any format. The tape reader and punch run continuously and simultaneously at maximum rates by utilizing program interrupts. A releasable configuration section allows tailoring the program to any memory size and I/O configuration, while allowing maximum memory space for storing the master in core for verification.

Assembly language, absolute.

Contributed:
David R. McClellan
HP, Southern Sales Region

22360A, DOS-M PAPER TAPE REPRODUCER

This paper tape reproducer for DOS-M uses a double buffer to achieve maximum speed on input/output devices. When used with the contributed photoreader driver, HP 22353, absolute binary tapes can be reproduced as well as source and relocatable binary. Checksums are computed on relocatable and absolute binary format tapes.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22368, PAPER TAPE COPY

This absolute program punches and verifies paper tapes of any format. It can also copy a file from a magnetic tape or disc via the appropriate SIO driver. Checksums are verified via the photoreader while the punch operation is still in progress. Copy also allows a user to concatenate tapes.

Assembly language, absolute.

Contributed:
George Anzinger
HP, Automatic Measurement Division

22241B, TREESORT3

This is a sophisticated procedure that performs a very rapid alphabetic or numerical sort, or a combined alphabetic and numerical sort. Sorting is conducted "in place", consequently, the sorted data replaces the unsorted data in core storage. The program is ALGOL callable.

ALGOL

Contributed:
Jim Katzman
Amdahl Corporation

22282A, DOS-M LIBRARIAN

The DOS-M Librarian accepts paper or magnetic tape input to shorten, lengthen, or modify relocatable libraries. The user communicates with the librarian by means of commands typed in through the system console. Program input is created by Prepare Tape System (PTS) or the :DU command of DOS-M and output is on punched paper tape.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22283A, ASCII DISC FILE SORT PROGRAM

This program generates an ASCII file under DOS or DOS-M and allows the user to sort on this file or any other ASCII file. The sort can be started on any character in a line. Fields are sorted from left to right. Any length file may be sorted but the time required for a sort is directly related to N * (N-1) where N is the number of items in the disc file.

FORTRAN II

Contributed:
George W. Taylor
HP, Neely Sales Region

22343A, FIELDSORT

This ALGOL procedure sorts ASCII or integer data into alphabetic and/or numeric order. The user specifies the number of records to be sorted, the record length, and the field on which the sort is to be performed. The remaining data in each record is carried along unchanged by FIELDSORT.

ALGOL

Contributed:
Jim Katzman
Amdahl Corporation

22376A, ASCII DISC FILE FIELD SORT

This program generates ASCII files under DOS or DOS-M and allows the user to sort the files according to ASCII hierarchy. The sort is accomplished according to a user specified field containing from 1 to 10 characters. Fields are sorted from left to right. A maximum of 1000 lines may be sorted. The sort is completely core based and requires 16K.

FORTRAN II.

Contributed:
George W. Taylor
HP, Neely Sales Region

22383A, ALPHANUMERIC RECORD SORT

This program performs a very rapid ASCII Code sort in an 8K BCS environment. The program uses two disc or magnetic tape files for scratch area and sorted data output. Optionally the sorted data may be dumped to the line printer, paper tape or a third disc/magnetic tape file with a substantial improvement in execution time.

Up to four separate fields may be selected in order of sorting significance. Each field may range from a single solumn to the entire length of the record.

ALGOL/Assembly language, relocatable.

Contributed:
Marlin Schell
HP, Data Systems

22341A, FTN IV CORE SAVER

This subroutine allows the FORTRAN IV program that uses only FORTRAN II I/O functions to use the FORTRAN II formatter and thus save a considerable number of words. The savings in RTE/DOS are a maximum of $1562_8 = 882_{10}$ words. In BCS the savings are a maximum of $1213_8 = 651_{10}$ words.

Assembly language, relocatable.

Contributed:
George Anzinger
HP, Automatic Measurement Division

22347A, DOS/DOS-M SOURCE FILE VERIFY PROGRAM

This program provides the capability of comparing a source program against a source file on DOS or DOS-M. The user provides the logical unit of the input device and the name of the source file. The program reads the tape and compares it with the disc file, record by record. If a line is found that does not agree, the disc and tape version are printed out. A final statement is made that the verify is "Good" or "Not Good."

By using this program with the standard DOS/DOS-M features, ":ST,S" and ":DU", one can duplicate source tapes and verify the read and punch operations.

FORTRAN II/Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22354A, DOS-M STORE ABSOLUTES

This program "STAB" uses the contributed photoreader driver, HP 22353, to read an absolute object tape into a user buffer area and then stores the tape in a disc file of type BD, binary data. This file is created under program control with the corresponding directory entry. STAB allows the user to create disc files of any type under program control along with the corresponding directory entry.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22355A, DOS-M PAPER TAPE/DISC VERIFY

This program allows a user to verify paper tapes of any format against a disc file under DOS-M. If used in conjunction with the contributed photoreader driver, HP 22353, and the DOS-M Store Absolutes, HP 22354, this program will verify absolute object tapes against a binary data file.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22358A, EASY MAGNETIC TAPE I/O AND STATUS INFORMATION

This utility is used in a DOS/DOS-M or RTE environment to eliminate the tedious programming required to achieve magnetic tape data transfer or status information. It checks for on line condition, write ring present, end of tape, and CALLs EXEC for data transfers and status. By checking the indicators returned by this routine the user maintains the flexibility of branching in his own program.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22359A, HANDI-0

This group of nine utility programs allows the DOS-M user to page the line printer, produce leader on the punch, write a ": :" to magnetic tape, rewind magnetic tape, back space magnetic tape file(s), back space magnetic tape record(s), forward space magnetic tape file(s), forward space magnetic tape record(s), and convert card input to paper or magnetic tape eliminating trailing spaces. All necessary calls are performed by the program.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22381A, RELOCATABLE MODULE LISTER

This program allows a user to selectively list the following records from relocatable tapes; NAM, ENT, EXT, DBL, and END along with their relocatable addresses. The listing may be generated in either symbolic or octal format under BCS, MTS, DOS, or DOS-M. Errors such as checksums, parity, etc. are also listed.

Assembly language, relocatable.

Contributed:
Dave Snyder
HP, Santa Clara Division

22392A, RELOCATABLE OBJECT UTILITY LIBRARIAN

This program reads relocatable object tapes under BCS and optionally lists program length, length of common in octal, names of entry points, and external references. Each program may be selectively punched onto a library tape.

Assembly language, relocatable.

Contributed:
Thad Smith III
National Bureau of Standards

22400A, ZERO

This ALGOL callable routine stores zeroes or ASCII blanks throughout an array. It is most useful when repeated calls to the library "INDEX" routine would tend to slow program execution. It requires 8K core and was written for the BCS environment.

Assembly language, relocatable.

Contributed:
Ed Doust
HP, Corporate

22277A, DOS-M FILE ACCESS AND STRING LOOKUP

Subroutine DISC provides word-oriented access to serial disc files under DOS-M. The user program specifies only the relative word number within the file and the routine calculates the physical track and sector addresses. It buffers user's requests through a one-sector buffer. User READ requests are performed as logical reads (i.e. if the required sector is already in core, the disc is not physically accessed). No logical WRITE is attempted. A FORTRAN program is included that demonstrates the use of subroutine DISC as a string lookup routine.

Assembly language, relocatable.

Contributed:
Rudolf Beuerlein
HP, Germany/Frankfurt

22330A, PSEUDO REPORT GENERATOR

This program, operating in a DOS-M environment, enables the user to define, construct, edit, and list ASCII data files in selective output formats. Flexible data base definition enables the user to specify how many data fields as well as the number of characters per field up to a maximum logical record length of 256 characters. Key fields may also be specified and later used in selected listings. Considerable flexibility is provided in the type of listing that may be produced from the data in an existing data file. Typical applications are production of mailing lists, personnel lists, etc.

ALGOL.

Contributed:
Bill Williams
HP, Data Systems

22364A, EFMP RECORD READ/WRITE

This program allows a user to read or write Integer, Octal, or ASCII records (of N words) on any file in the EFMP environment.

FORTRAN IV.

Contributed:
Enrico Mariani
HP, Italy/Milan

22369A, DOS-M FILE WRITER

This program allows a DOS-M user to write integers, reals, or ASCII data on a specified part of a specified file.

It is conversational.

FORTRAN IV.

Contributed:
Enrico Mariani
HP, Italy/Milan

22373, ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE

This small package of software working in the EFMP environment gives the user an easy way to handle records divided into items (fields).

It consists of programs designed to maintain a directory for itemized files, subroutines that allow easy use of itemized files, and general purpose programs for listing, checking, etc.

It requires a 16K DOS-M system with EFMP, the Extended File Management Package.

FORTRAN IV.

Contributed:
Enrico P. Mariani
HP, Italy/Milan

24227A, DOS-M EXTENDED FILE MANAGEMENT PACKAGE

The Extended File Management Package (EFMP) extends the file handling capabilities of DOS-M by allowing the user to create and access files with different record lengths, security codes, etc. EFMP consists of a series of EXEC modules and a utility program (UTIL). The prerequisites are DOS-M with 16K core.

Assembly language and FORTRAN IV.

HP supported
Data Systems Development Division (Cupertino)

22370A, OFFLINE ENCODE/DECODE FOR THE TALLY DATA SYSTEM

The Tally program is used to encode and decode source tapes which are to be sent over phone lines via a Tally Data System. Encoding inserts checksums, parity bits, etc. at the sending station and decoding deletes these verification punches. To give the user confidence in the accurate transmission at the receiving station, the Tally program checks the encoded tape and then it decodes the accepted data tape.

It is not intended to replace standard data communications procedures in any way. Tally is self-contained, requires only 4K core, and both the sending and receiving stations must have copies of this program.

Assembly language, absolute.

Contributed:
Eugene Burmeister
HP, Loveland Division

22386A, MULTIRECORD FORMATTED OUTPUT LISTER

This program provides user capability to output multi-record formatted data streams to one or more list devices via user command control under DOS. Ostensibly for line-printer listings of punched cards, the user command set allows selective input from several devices and juxtaposition of these input fields. The command set also controls insertions of spaces, characters, portions of a core-saved record, page numbers, page headings, top of form line-spaces, and linefeeds into the data stream. The user may vary output record length by stripping trailing blanks, or partially suppress a listing of the output data stream via command control.

The command set itself may be partially input through the terminal in a conversational mode or mixed with the input data stream in a card reader, photoreader, or other input device.

ALGOL.

Contributed:
Herbert Shear
HP, Data Systems

A202, INSTRUMENT TEST

14901A, HP 6936A 21XX VERIFICATION AND TEST

This program tests an HP 6936/37 system attached to any HP 2100 family computer. The program sends test signals to, and receives information from, the HP 6936/37 system through a buffered TTY. The TTY driver is included in the program; no external drivers are required.

Tests 1 to 4 verify proper system operation; no special equipment is required. Tests 5 to 10 diagnose a malfunctioning system; an HP 6935A Service Kit is required.

Assembly language, relocatable.

HP supported:
New Jersey Division

20337D, DIAGNOSTIC: 12604B DSI

This routing tests the HP 12604B Data Source Interface Kit, together with the associated digital voltmeter.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

20348C, DIAGNOSTIC: 40-BIT OUTPUT REGISTER (12556B)

This routine tests the HP 12556B 40-Bit Output Register.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

20349D, VERIFY: 2911 SCNR/DVM TEST

This routine tests the HP 2911A Guarded Crossbar Scanner, and/or the HP 2401C Integrating Digital Voltmeter or the HP 2402A Integrating Digital Voltmeter, and the associated interface kits.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

20429B, DIAGNOSTIC: 2912A PROGRAMMER CARD

This routine tests the HP 2912A Reed Scanner and the associated interface kit.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

20530D, VERIFY: 2321A SUBSYSTEM (3450/2911) VER34

This routine tests the HP 2321A subsystem.

Assembly language, absolute.

HP supported:
Automatic Measurement Div.

24196A, HP 2100A GENERAL PURPOSE REGISTER TEST

This HP 2100A program tests for proper operation of general purpose interface cards. Currently used for 8-bit and 16-bit duplex registers and 16-bit microcircuit registers.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24197A, HP 2100A PROCESSOR INTERCONNECT CABLE TEST

This HP 2100A program checks the 12875A Processor Interconnect Cable for hardware errors.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24199A, HP 2100A CONTROLLER MICROCIRCUIT TEST

This HP 2100A program tests the proper operation of the 12849 Controller Microcircuit Interface Card in the HP 2100A computer.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

13041B, HP 7900/13210 DIAGNOSTIC PROGRAM

This program tests the HP 7900 Moving-Head Disc Drive and associated interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

24184B, HP 2770/71 DISC AND HP 2773/74/75 DRUM DIAGNOSTIC

This diagnostic routine tests the HP 2770/71 Disc Memory and the HP 2773/74/75 Drum Memory.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24203A, HP 2100A CARTRIDGE DISC MEMORY DIAGNOSTIC

This HP 2100A program confirms proper output, input and control functions for the cartridge disc memory. Rapid checkout of the controller is provided in addition to exhaustive testing of the drive. The test operator may choose to run under the default mode or define his own test with teleprinter and switch register options. Provision is made for serial checkout of up to four drives. Interaction between drives also can be tested. This diagnostic does not provide checkout of more than one controller. Either DMA channel can be used.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24204A, HP 2100A DISC FILE (2883) DIAGNOSTIC

This diagnostic test program for the HP 2100A computer confirms proper input, output and control functions for the HP 2883 Disc File. Rapid checkout of the controller is provided in addition to exhaustive testing of the drive. The test operator may choose to run under the default mode or define his own test with teleprinter and switch register options. Provision is made for serial checkout of up to two drives. This diagnostic does not provide checkout of more drives. This diagnostic does not provide checkout of more than one controller. Either DMA channel can be used.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24207A, HP 2100A FIXED HEAD DISC/DRUM DIAGNOSTIC

This HP 2100A program tests input, output and control functions of the device under test. The program rapidly checks the interface and exhaustively tests the device itself. The user can design his own tests for specific functions. This diagnostic does not check more than one disc or drum at one time.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24236A, HP 2883 DISC FILE DIAGNOSTIC

Tests input, output, and control functions for the HP 2883 Disc File with an HP 2116, 2115, or 2114 computer. Rapid checkout of one controller and exhaustive, serial testing of two disc drives are provided. The user can employ a default mode or define his own tests through teleprinter and switch register program options. Either DMA channel may be used. This program obsoletes the HP 2883 Disc File Diagnostic, HP order number 24176A.

Assembly language.

HP supported:
Data Systems Development Division (Cupertino)

24237A, CARTRIDGE DISC MEMORY DIAGNOSTIC

Tests input, output, and control functions for the Cartridge Disc Memory with an HP 2116, 2115, or 2114 computer. Rapid checkout of one controller and exhaustive, serial testing of up to four disc drives are provided. Interaction between drives may also be tested. The user can employ a default mode or define his own tests through teleprinter and switch register program options. Either DMA channel may be used. This program obsoletes the Cartridge Disc Memory Diagnostic, HP order number 20585B.

Assembly language.

HP supported:
Data Systems Development Division (Cupertino)

A204, MAGNETIC TAPE EQUIPMENT TEST

13020C, HP 7970 MAGNETIC TAPE UNIT DIAGNOSTIC

This routine tests the HP 7970 Magnetic Tape Unit and the associated interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

13028D, HP 7970/13182 MAGNETIC TAPE UNIT DIAGNOSTIC

This program tests the HP 7970 7-Track Magnetic Tape Unit and interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

13031A, HP 7970E/13183 DIAGNOSTIC

This program verifies proper operation of the HP 7970E/13183 (Read/Write) System combination.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Mountain View)

A205, GRAPHIC EQUIPMENT TEST

22323A, TEST PATTERN GENERATOR FOR HP 1331C STORAGE SCOPE

Under switch register control, this absolute program generates two scope test patterns. The alignment test pattern is useful for calibration and alignment of the 1331C X-Y Display. A vertical and horizontal test pattern can be displayed under interrupt control.

Assembly language, absolute.

Contributed:
Robert O. Smith
University of Mississippi Medical Center

22257A, MTS/BCS SYSTEM ABSOLUTE DUMP

This program dumps an absolute tape under BCS. When used as input to Prepare Tape system, it generates only three data records on file one instead of the usual several hundred. Faster access time under MTS and a significant savings in magnetic tape are the benefits of this program. It can be used along with or instead of the Basic Control System absolute dump option.

When used as a general routine it can dump an entire BCS system or selected core sections enabling system modification without reassembly and generation of a new absolute tape.

Assembly language, relocatable.

Contributed:
Thomas J. Winker
HP, Neely Sales Region

22259A, DOS TO MAGNETIC TAPE DUMP

This absolute program dumps selected source files of length less than 237 sectors, from DOS to a nine-track 7970/3030 in a format compatible with the Magnetic Tape Storage and Retrieval Program, 22198. It is loaded over a "halted" DOS and uses base page constants to find the system directory track and handle the 90/128 sector per track discs. Requires 16K Disc Operating System.

Assembly language, absolute.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22260A, MAGNETIC TAPE TO DOS DUMP

This absolute program loads source files over a "halted" 16K DOS from a nine-track magnetic tape which has been previously prepared by the Magnetic Tape Storage and Retrieval Program, 22198. Any number of tape records may be concatenated to form a single source file on DOS.

The 16K DOS may have a 90 or 128 disc/drum with an HP 7970 or 3030 magnetic tape unit.

Assembly language, absolute.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22280A, ABSOLUTE CORE DUMP ROUTINE

This routine allows dumping selected areas of core onto tape in a format compatible for loading with the Basic Binary Loader. Two versions are supplied to the user; one absolute for loading through the Basic Binary Loader, and one relocatable for loading through the Basic Control System. No external subprograms are called.

Assembly language, relocatable and absolute.

Contributed:
Donald C. Dougherty
Applied Research Laboratories

22290A, CORE PUNCH IN BBL FORMAT

This program punches selected areas of core in a format which can be reloaded by the Basic Binary Loader. The user inputs the necessary parameters through the switch register at RUN time. Provisions exist to allow punching an absolute tape which will reload to another part of the core. This feature is useful for moving data.

Assembly language, absolute.

Contributed:
Dave Snyder
HP, Santa Clara Division

22296A, HP 2870 DISC/MAGNETIC TAPE DUMP IN DOS-M FORMAT

This dump is an absolute SIO program that contains its own disc driver. It dumps a DOS-M system or user disc from an HP 2870 disc cartridge to magnetic tape for temporary storage. It can later be dumped back to any disc subchannel in a DOS-M compatible format. Discs are labeled according to the label on the tape. A verify option will compare the information on the selected disc with the information on the magnetic tape. If an operating system is copied to disc, the appropriate tracks will be protected.

Assembly language, absolute.

Contributed:
Tom Hall
HP, Eastern Sales Region

22300B, QUICK FIXED HEAD SDUMP

This absolute assembly program uses the magnetic tape and teleprinter SIO drivers to dump or load the contents of a fixed head disc to or from magnetic tape. The program contains its own internal disc "SIO" driver. Speed is obtained by writing one magnetic tape record per logical disc track.

The hardware parity check in the magnetic tape controller is augmented by a software checksum written onto magnetic tape. Requires 16K core, any HP fixed head disc, DMA, any HP magnetic tape drive, and an HP 2752A teleprinter.

Assembly language, absolute.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22321A, HP 2870 DISC DUMP

This absolute program dumps the contents of memory or of any subchannel from an HP 2870 Moving Head Disc to a list output device in ASCII or octal format. The user options are input conversationally at RUN time through the system teleprinter. The list output is accomplished by using the SIO driver of the list device.

Equipment required includes 16K memory, an HP 2870 Moving Head Disc, and HP 2752A Teleprinter and a line printer (optional).

Assembly language, absolute.

Contributed:
Susan Jean Temple
Montana State University

22322A, ABSOLUTE OCTAL OR DECIMAL CORE DUMP

This absolute program dumps core to the teleprinter in double spaced records consisting of one octal address and eight octal or decimal images of word contents. The test program "Character Frequency Distribution in Tape" together with "dump" is useful for detecting defects in paper tape and paper tape devices as well as debugging and scanning programs without accessible source.

Assembly language, absolute.

Contributed:
Dr. J. Schrama
Central Laboratory D.S.M./The Netherlands

22340A, 360 FORMAT MAGNETIC TAPE DUMP

This program accepts ASCII paper tape or IBM 029 punched cards as input and dumps images to an OS/360 compatible nine track magnetic tape. Output may be ASCII or EBCDIC code, standard labelled or unlabelled magnetic tapes with fixed or variable blocked records. It operates under control of BCS.

Equipment required includes 16K core, any HP photo-reader or HP 2761 card reader, and an HP 7970 nine track magnetic tape unit.

ALGOL/Assembly language, relocatable.

Contributed:
Ted Slater
Simon Frazer University/Canada

24193A, HP 2100A LOW MEMORY PATTERN TEST

This HP 2100A program resides in low core and tests for proper operation of 2100A high memory under worst case noise conditions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24194A, HP 2100A HIGH MEMORY PATTERN TEST

This HP 2100A program resides in high core and tests for proper operation of 2100A low memory under worst case noise conditions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24198B, HP 2100A MEMORY PARITY CHECK TEST

This HP 2100A program tests for proper operation of the HP 2100A memory parity check circuitry.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24211A, HP 2100A LOW MEMORY ADDRESS TEST

This HP 2100A program tests the memory address register and an area of core specified by the user. It resides in low core (100_8 through 143_8).

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24212A, HP 2100A HIGH MEMORY ADDRESS TEST

This HP 2100A program tests the memory address register and an area of core specified by the user. It resides in high core (3600_8 through 3643_8).

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24208A, HP 2100A ALTER-SKIP INSTRUCTION TEST

This HP 2100A program tests the alter-skip group of instructions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24209A, HP 2100A MEMORY REF. INSTRUCTION TEST

This HP 2100A program tests the memory reference group of instructions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24210A, HP 2100A SHIFT-ROTATE INSTRUCTION TEST

This HP 2100A program tests the shift-rotate group of instructions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24214A, HP 2100A EXTENDED ARITHMETIC UNIT TEST

This HP 2100A program tests the extended arithmetic group of instructions.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24215A, HP 2100A INTERRUPT TEST

This program tests the HP 2100A Interrupt Logic and the interrupt capability of any of its I/O slots.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

22293A, OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM

OCTAPUS is a troubleshooting aid which eliminates time comsuming toggling from the switch register. It is a self-configuring, self-contained program residing within the bounds of a single page in core. Communication is conversational through the teleprinter. The following functions can be performed: assembly into core, inverse assembly from core, punch absolute tape from core, load absolute tape to core, verify absolute tape to core, dump core to teleprinter in octal and jump to any location in core.

Assembly language, absolute.

Contributed:
Harvey Thackston
HP, Southern Sales Region

22314A, RTE CROSS-REFERENCE SYMBOL TABLE GENERATOR

This program produces a Cross-Reference Table of Symbolic names used in HP Assembly language programs. It accepts an assembler source tape as input under RTE, and produces a list of symbols in alphabetical order as output. The symbol name is followed by its location in the program and a list of references.

Assembly language, relocatable.

Contributed:
J. D. Sankey
National Research Council of Canada

24109B, CROSS-REFERENCE SYMBOL TABLE GENERATOR

From an assembly language source program, this program produces and prints an alphabetized cross-reference list of all symbols appearing in the program. Each symbol is followed by the sequence number of the statement in which it is defined, and by the sequence numbers of all statements referring to the symbol. Program 24123, 24125, or 24127 (classification code A002) must be used as the teleprinter or line-printer driver.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24223B, DOS CROSS-REFERENCE ROUTINE

This program processes an assembly language source program under DOS/DOS-M and produces a list of all symbols in the source program and all references to each symbol.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

22016C, SYMBOLIC ALPHANUMERIC GENERATOR

Furnishing a means of labelling a program or routine, this program generates a block-lettering leader or trailer for a punched tape.

Assembly language, absolute.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22267A, MTS FORTRAN CHAIN

CHAIN is a relocatable subroutine configured into MTS file two which permits a FORTRAN program to chain to an absolute program on file one through a CALL statement.

Assembly language, relocatable.

Contributed:
Stroud Custer
HP, Eastern Sales Region

22269A, PAPER TAPE TITLER

This FORTRAN-callable subroutine allows the user to label his paper tapes under program control. Character size is equivalent to the width of eight-level punched paper tape.

Assembly language, relocatable.

Contributed:
Eugene Burmeister
HP, Loveland

22278A, TAB FOR PREPARING FORTRAN TAPES

FTRAN is an online absolute program for the preparation of FORTRAN source tapes. It is written for a system having only a teleprinter as the output device. Edit file tapes can also be prepared using this program.

Assembly language, absolute.

Contributed:
Tom Prewitt
Delco Electronics

22287A, CHAIN FROM PHOTOREADER IN HP BASIC

This program allows a user to chain programs via the photoreader in HP BASIC, 20392, by executing the SCRATCH, PTAPE, and RUN commands. The statement CALL (63) has to be located immediately before the END statement to facilitate the chaining feature.

Assembly language, absolute.

Contributed:
Peter Frye
HP, Germany/Berlin

22289A, ALGOL ARRAY TRANSFER FOR SEGMENTATION

This routine allows the transfer of array data between ALGOL main and segments under DOS, DOS-M, or RTE. Since COMMON is not normally available in ALGOL, this routine accepts the addresses of up to 10 ALGOL arrays and saves the addresses of the array tables. Another call allows the segments to get these addresses so that it may use the original array directly. Thus, COMMON is established between a main program and its segments by copying the original array table of MAIN into a dummy array table of the segment. Requires ALGOL compiler HP 24129B.

ALGOL/Assembly language, relocatable.

Contributed:
Fritz Joern
HP, Germany/Frankfurt

22302A, RTE/DOS HP 2322A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM CONVERSION ROUTINE — FORTRAN CALLABLE

This conversion routine allows a FORTRAN program which calls BCS Driver, D.76, to operate without modification with the DOS or RTE HP 2322A Subsystem Driver, DVR76.

Assembly language, relocatable.

Contributed:
Steve Stark
HP, Eastern Sales Region

22303A, DOS/RTE HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM CONVERSION ROUTINE — FORTRAN CALLABLE

This conversion routine allows a FORTRAN program which calls the BCS Driver, D.76, to operate without modification with the DOS or RTE HP 2320A Subsystem Driver, DVR76.

Assembly language, relocatable.

Contributed:
Steve Stark
HP, Eastern Sales Region

22309A, HP2322A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM CONVERSION ROUTINE — FORTRAN CALLABLE

This conversion routine allows a FORTRAN program, which calls the BCS driver D.76, to operate without modification with the DOS or RTE HP 2322A Subsystem Driver, DVR76.

Assembly language, relocatable.

Contributed:
Steven A. Stark
HP, Eastern Sales Region

22310A, FORTRAN/ALGOL ARRAY TRANSFER ROUTINE

The transfer of arrays between a Fortran Program and an Algol Procedure is normally not possible, because there are no array tables in the procedure for the dummy array parameters. This routine creates such array tables which refer to external Fortran arrays. These may be in normal storage or in common. In the Algol procedure, the dimensions can be handled dynamically, so you are able to change array dimensions at Run-Time. The maximum number of indices is three with respect to FTN4. The arrays may be of type real or integer.

Contributed:
Dr. Rolf Robcke
HP, Germany/Frankfurt

22320A, DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM

This program allows a DOS or DOS-M system operator to manipulate an HP 2020 or HP 3030 magnetic tape unit. Parameters entered with the :PROG,LOADR command determine the operations to be performed: write end-of-file, forward space, back space, rewind, and rewind-standby. Up to four of these operations can be performed with one command.

Assembly language, relocatable.

Contributed:
Dennis I. Smith
Montana State University

22346A, DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER

This Assembly Language Comment Inserter reads a source assembly language program from a disc file (or paper tape or magnetic tape), prints each statement on the teleprinter allowing the user to add comments if desired and then outputs the commented source to paper tape or magnetic tape. In case the output device is a magnetic tape, the program does the necessary handling of the magnetic tape and, upon completion of the program, the commented source is ready to be stored on the disc using a ":ST,S" command. Previously commented lines are duplicated without teletype output. A switch option allows duplicating sections without adding comments. This program is similar in operation to 22105 but with the above additional features.

Assembly language, relocatable.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

22351A, ASCII STRING SEARCH FROM DISC FILE

This program searches a source file on the disc for all occurrences of a specified string of characters as input from the system console or batch device. The maximum string length is 72 characters. The located strings are listed on the line printer or system console by line number and position within the line, and the line itself is printed. Non-printing characters are listed in octal. Requires a minimum DOS or DOS-M System.

FORTRAN II/Assembly language, relocatable.

Contributed:
Allan P. Sherman
HP, Medical Electronics Division

22352A, ACII STRING SEARCH FROM PHOTOREADER

This program searches a source tape for all occurrences of a specified string of characters as input from the teleprinter. The maximum string length is 72 characters and non-printing characters are listed in octal. The located strings are identified by line number and position within the line, and the line itself is listed on the teleprinter or line printer.

FORTRAN II/Assembly language, relocatable.

Contributed:
Allan P. Sherman
HP, Medical Electronics Division

22366A, ALGOL SEGMENT RETURN TO MAIN PROGRAM

Subroutine SEGLINK permits a user to leave an ALGOL main program at any point, call in a segment, execute the segment, and return to the main program at the same point for further execution.

Used in conjunction with HP 22289 ALGOL ARRAY Transfer, this package provides flexible and powerful capabilities to the ALGOL programmer in a DOS/DOS-M environment.

Assembly language, relocatable.

Contributed:
Glyn Harris
HP, Slough/England

29017A, FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER D.65 (L65)

L65 is a relocatable assembly language subroutine that interfaces FORTRAN/ALGOL READ or WRITE statements to D.65. The subroutine also allows FORTRAN or ALGOL programs to make the necessary D.65 CLEAR and STATUS calls.

Assembly languge, relocatable.

HP supported:
Automatic Measurement Division

29018A, LISTEN MODE ASSEMBLER LANGUAGE INTERFACE SUBROUTINE FOR BCS DRIVER D.65 (DIR65)

DIR65 is a relocatable assembly language subroutine that performs I/O requests through the HP 12665 card when D.65 is in the Listen Mode. DIR65 must be called by the user's interrupt-scheduled program.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

29019A, LISTEN MODE FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER D.65 (DRL65)

DRL65 is a relocatable assembly language subroutine that performs I/O requests through the HP 12665 card when D.65 is in the Listen Mode. DRL65 must be called by the user's interrupt-scheduled FORTRAN or ALGOL program.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

29020A, FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER D.66 (L66)

L66 is a relocatable assembly language subroutine that is called by FORTRAN or ALGOL programs when the user does not want to use READ or WRITE statements in D.66. (READ and WRITE statements use the HP Formatter.) The subroutine also allows FORTRAN or ALGOL programs to make any necessary CLEAR or STATUS calls required to operate D.66.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

29021A, FORTRAN/ALGOL INTERFACE SUBROUTINE FOR RTE DRIVER DVR65 (DLK65)

DLK65 is a utility subroutine which must be used by FORTRAN or ALGOL programs making a DVR65 output request and I/O data call.

Assembly language, relocatable.

HP supported:
Automatic Measurement Division

A213, PAPER TAPE EQUIPMENT TEST

24189B, HP 2100A TAPE READER TEST

This HP 2100A program tests the HP 2748 Tape Reader or the HP 2758 Tape Reader Reroller with the HP 12597-02 Interface Kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24190A, HP 2100A TAPE PUNCH TEST

This HP 2100A program tests the HP 2753 Tape Punch with the HP 12597A-03 Interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24201A, HP 2100A TTY TEST

This HP 2100A program tests the HP 12531-60022 Teleprinter Interface card and the HP 2752A or HP 2754 A/B Teleprinter.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

A214, PUNCH CARD EQUIPMENT TEST

20899B, HP 2761A-007 OPTICAL MARK READER DIAGNOSTIC, 12602B KIT

This routine tests the HP 2761A-007 Optical Mark Reader with the HP 12602B interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24188B, HP 2100A OPTICAL MARK RDR TEST (KIT 12602B)

This HP 2100A program tests the operation of the HP 2761A-007 Optical Mark Reader, using the HP 12602B Interface Kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24192A, HP 2100A CARD FOR (2891/12882) DIAGNOSTIC

This HP 2100A program tests the HP 2891 Card Reader and the HP 12882 Card Reader Interface.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

A215, PRINTER EQUIPMENT TEST

20895C, HP 2778 LINE PRINTER DIAGNOSTIC

This routine tests the HP 2778 (120 characters/line) Line Printer and the HP 2778-001 (132 characters/line) Line Printer, together with the associated interface kit. The routine requires the standard carriage-control tape, which is supplied with the HP 12617A interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24205A, HP 2100A LINE PRINTER (2767) DIAGNOSTIC

This HP 2100A program tests all HP 2767 Line Printer functions, and allows the user to design his own test series for exercising any function.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24218C, HP 2100A LINE PRINTER (2778) TEST

This HP 2100A program tests the HP 2778 Line Printer for errors and malfunctions. The program requires a standard carriage control tape (in the line printer) and a teleprinter (in reporting errors and messages).

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

A216, A/D - D/A EQUIPMENT TEST

20075D, VERIFICATION: 2311A SUBSYSTEM

This routine tests the HP 2311A High-Speed Data Acquisition Subsystem.

Assembly language, absolute.

HP supported:
Automatic Measurement Division

20338D, TEST: 2310C SUBSYSTEM

This routine tests the HP 2310C Miniverter System.

Assembly language, absolute.

HP supported:
Automatic Measurement Division

20583C, CALIBRATION: 2311 (TELEPRINTER)

Employing a standard-voltage source, this routine is used for calibrating the HP 5610A A to D Converter.

Assembly language, absolute.

HP supported:
Automatic Measurement Division

24187C, HP 2600 KEYBOARD-DISPLAY TERMINAL TEST

This routine tests the HP 2600A Keyboard-Display Terminal and its interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24200A, HP 2100A KEYBD-DISPLAY TERMINAL (2600) TEST

This test program for the HP 2100A Keyboard-Display Terminal (2600) confirms proper operation of the HP 12880-60001 Interface Card and provides visual data patterns that test important functions of the terminal.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24217A, HP 2100A AUTO CALL UNIT INTERFACE (12589) TEST

This HP 2100A program tests the Automatic Calling Unit interface, HP 12589A, for malfunctions. A test connector is required and a teleprinter is recommended for operating the program.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24219A, HP 2100A SEND (ONLY) INTERFACE (12622) TEST

This HP 2100A program tests the HP 12622 Send Interface for errors and malfunctions. A test connector is required and a teleprinter is recommended for reporting errors and messages.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24220A, HP 2100A RECEIVE (ONLY) INTERFACE (12621) TEST

This HP 2100A program tests the Receive Interface (12621) for errors and malfunctions. A test connector is required and a teleprinter is recommended for reporting errors and messages.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24221B, HP 2100A SEND/RECEIVE INTERFACE (12587) TEST

This HP 2100A program reports errors and malfunctions for the HP 12587 Interface. A test connector is required and a teleprinter is recommended for reporting errors and messages.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

22333A, HP 9300N DISC EXERCISER

This absolute program simulates the hardware exerciser required for aligning the HP 9300N Disc Drive. A control program consisting of command mnemonics and parameters (if required) is entered through the teleprinter keyboard. One mnemonic and its parameter (if required) is typed on each line followed by carriage return. The program is then executed by typing "ex" and carriage return.

Assembly language, absolute.

Contributed:
Harvey E. Thackston
HP, Southern Sales Region

24175A, TTY MULTIPLEXOR TEST (12584C)

Verifies proper operation of the 12584-60135 TTY Multiplexor Interface Board in an HP 2116, 2115 or 2114 computer.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24185A, 2115/2116 DMA DIAGNOSTIC

Tests proper operation of the Direct Memory Access option for an HP 2115 or 2116 computer. A special edge connector (for example, HP 1251-0332 with pin 22 wired to pin 23) must be used. This program obsoletes the DMA Diagnostic program, HP order number 20419.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24191A, HP 2100A PLOTTER (12560) TEST

This HP 2100A program tests for proper operation of the HP 2791A Plotter and the HP 12560 Plotter Interface kit.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24195A, HP 2100A DMA DIAGNOSTIC

This HP 2100A program tests in proper operation of the HP 2100A Direct Memory Access Option. The program requires either a HP 12566 microcirucit register using an HP 1251-0332 connector (with pin 22 wired to pin 23) or a TTY with an HP 12531B Interface. (The best configuration uses both.)

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24202A, HP 2100A TTY MULTIPLEXOR TEST

This HP 2100A program confirms proper operation of the HP 12584-60135 Teleprinter Multiplexor Interface Board.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24206B, HP 2100A POWER FAIL DIAGNOSTIC

This HP 2100A program confirms the proper operation of the power fail interrupt for the HP 2100A computer.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24213B, HP 2100A TIME BASE GENERATOR TEST

This HP 2100A program tests the time base generator. An HP 12539 Interface Kit is required.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24216A, HP 2100A RELAY REGISTER TEST

This HP 2100A program tests the relay register. An HP 12551B Interface kit is required.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24222A, HP 2100A MEMORY PROTECT TEST

This HP 2100A program tests the HP 2100A memory protect feature. A teleprinter is required.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

24251A, HP 2100A FLOATING POINT DIAGNOSTIC

This HP 2100A program tests the hardware for floating add, floating subtract, floating multiply, floating divide, fix and float. Results are verified by software routines.

Assembly language, absolute.

HP supported:
Data Systems Development Division (Cupertino)

29005A, HP 12665 COMPUTER SERIAL INTERFACE CARD DIAGNOSTIC

This routine tests the HP 12665 Computer Serial Interface card.

Assembly language, absolute.

HP supported:
Automatic Measurement Division

29006A, HP 12813 COUPLER SERIAL INTERFACE CARD DIAGNOSTIC

This routine tests the HP 12813 Coupler Serial Interface Card.

Assembly language, absolute.

HP supported:
Automatic Measurement Division

A300, MATH AND NUMERICAL ANALYSIS

A301, MATHEMATICS, GENERAL

22084C, INTEGRATED MATH CALCULATOR PROGRAM

The IMCP program allows the entry of programs into the computer without the necessity for a formal written program. To accomplish this the computer and teleprinter are employed in a manner similar to that used for operating many desk-top calculators. The teleprinter keyboard serves to enter integer or floating point decimal numbers, and to command 54 different arithmetic operations and functions. This calculator system may be used in "program mode" for repeated computation of long formulas consisting of many dissimilar steps. Six decimal places of accuracy are guaranteed.

Assembly language, relocatable.

Contributed:
Andre F. Peterlunger
Sandoz Chemicals, Switzerland

22085B, EXTENDED PRECISION CALCULATOR

The XCAL program allows the entry of programs into the computer without the necessity for a formal written program. To accomplish this the computer and teleprinter are employed in a manner similar to that used for operating many desk-top calculators. The teleprinter keyboard serves to enter integer or floating point decimal numbers, and to command 48 different arithmetic operations and functions. This calculator system may be used in "program mode" for repeated computation of long formulas consisting of many dissimilar steps. Ten decimal places of accuracy are guaranteed.

Assembly language, relocatable.

Contributed:
Andre F. Peterlunger
Sandoz Chemicals, Switzerland

22334A, THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES

This package of five subroutines allows a user to perform three-word extended precision arithmetic operations. The extended real numbers have a 38 bit mantissa plus a sign bit. These routines are ALGOL, FORTRAN, or Assembler callable.

Assembly language, relocatable.

Contributed:
Jaroslav Dedek
Technical University, Prague/Czechoslovakia

22097A, DOUBLE PRECISION LIBRARY

This program adds, subtracts, multiplies, and divides double precision (32-bit) numbers. Numbers up to 2,147,483,648 can be handled. The program is FORTRAN callable.

Assembly language, relocatable.

Contributed:
Enrico Mariani
HP, Italy/Milan

22335A, FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES

This package of six subroutines allows a user to perform five-word extended precision arithmetic operations. Each real number has a 63 bit mantissa plus sign and an exponent of 7 bits plus sign and an exponent of 7 bits plus sign. Arithmetic operations are rounded. These routines are callable from ALGOL, FORTRAN, and Assembler.

Assembly language, relocatable.

Contributed:
Anatol Malijevsky and Peter Vonka
Technical University, Prague/Czechoslovakia

22268A, DECIMAL ARITHMETIC AND MOVE/ COMPARE ROUTINES

The Decimal Arithmetic routines perform addition, subtraction, and multiplication of ASCII numeric character strings of up to 64 characters. Mixing of signed, unsigned, fixed point and real strings are allowed in the same operation. Leading, trailing, and interspersed non-numeric characters are ignored, while decimal-point placement and sign handling are automatic.

The Move/Compare routines CALL the Decimal Arithmetic to move or compare character strings. Characters are moved from left to right, and overlapping is permitted. Characters are compared from left to right, and the first mismatch determines the relation. A condition code is returned to indicate that the source string is less than, equal to, or greater than the comparison string.

Together these routines allow total manipulation of alphanumeric character strings. ALGOL or FORTRAN-callable.

Assembly language, relocatable.

Contributed:
David R. McClellan
HP, Southern Sales Region

22256A, FRESNEL INTEGRAL EVALUATION

This routine computes the Fresnel sine and cosine integrals

$$S(W) = \int_0^W \sin\left(\frac{\pi}{2} t^2\right) \, dt$$

$$C(W) = \int_0^W \cos\left(\frac{\pi}{2} t^2\right) \, dt$$

to an accuracy of 11 digits using the Extended Precision Floating-Point routines on the FORTRAN IV Relocatable Library. The accuracy desired is a parameter as well as the upper limit of integration (W). Both S(W) and C(W) are returned.

FORTRAN IV.

Contributed:
Jim Katzman
Amdhal Corporation

22027B, HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT

This routine computes the vector of integral values for a given equidistant table of function and derivative values. Beginning with Z(1) = 0, vector Z is evaluated by means of the Hermitian Fourth Order Integration Formula. The routine is FORTRAN callable.

FORTRAN II.

Contributed.

A311, POLYNOMIALS AND POLYNOMIAL EQUATIONS

22395A, REAL & COMPLEX ROOTS OF A POLYNOMIAL WITH REAL COEFFICIENTS

This routine calculates all real and complex roots of a given polynomial with real coefficients.

The roots of the polynomial are calculated by means of the quotient-difference algorithm with displacement.

FORTRAN II.

Contributed:
Don Mactaggart
Canadian Marconi Company

22189B, GENERAL FAST FOURIER TRANSFORM

This routine employs an efficient algorithm for finding the Fourier transform of a function. The expression evaluated is:

$$F(n) = \frac{1}{N} \sum_{i=0}^{N-1} F(i) e^{-jin \frac{2\pi}{N}}$$

Where the f(i) are in general complex. The Cooley-Tukey algorithm is used, offering large savings in time and storage over other methods. The number of input data must be an integer power of two, and the data must be complex.

Inverse transforms can also be taken with this routine. The inverse transform is:

$$F(i) = \sum_{n=0}^{N-1} F(n) e^{jin \frac{2\pi}{N}}$$

The routine is FORTRAN callable.

FORTRAN II.

Contributed:
Peter K. Bice
HP, Microwave Division

A400, PROBABILITY AND STATISTICS

A401, UNIVARIATE AND MULTIVARIATE PARAMETRIC STATISTICS

22145B, CONFIDENCE INTERVAL FOR MEAN AND VARIANCE OF A NORMAL DISTRIBUTION

This program calculates the upper and lower confidence limits for the mean and variance of a sample, assuming the data to be normally distributed. The user may specify a confidence level of 0.90, 0.95, or 0.99 for the confidence limits of the sample mean. The program generates 0.95 confidence limits for the sample variance, and handles a maximum of 900 data points. The program is part of the Stat-Pack group.

Equipment required is 8K of core storage.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22146C, SAMPLE SIZE DETERMINATION ON THE SAMPLE VARIANCE

This program utilizes an estimate of the sample variance, based on M degrees of freedom and a specified maximum confidence interval length, to determine the sample size required to give any test level estimate of the population mean. The program uses a trial and error method, with the initial sample size specified by the user. The sample size is determined for confidence levels of 0.90, 0.95, and 0.99.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22157B, BARTLETT'S HOMOGENEITY OF VARIANCE TEST

This program tests the hypothesis that the estimated variance from k samples is homogeneous. A one-sided alternative at the 0.95 confidence level is used as the test statistic; that is, if the calculated chi-square value exceeds the tabular value of chi square at the designated probability.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22159B, CHI SQUARE GOODNESS-OF-FIT TEST

This program performs the chi-square goodness-of-fit test, and computes the chi-square value of the test, for any of the following functions: binomial, chi square, F, normal, Poisson, Student's t. The user has the option of specifying the upper and lower bounds for a given number of intervals, or of reading in the endpoints of each interval. A maximum of 1,000 data points can be handled. HP Program 22143, classification code A408, can be used to furnish the source data. HP Program 22159 is part of the Stat-Pack group.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22161B, TEST OF HYPOTHESIS FOR MEANS

This program tests (a) whether the mean μ of a normal population equals a specified value μ_0 or (b) whether the means μ_1 and μ_2 are equal (providing both come from a normal population). Both tests first assume $\sigma_1^2 \neq \sigma_2^2$, and then assume $\sigma_1^2 \neq \sigma_2^2$. Results are determined with a confidence interval of 0.90, 0.95, or 0.99. The program is part of the Stat-Pack group.

Equipment required is 8K of core storage.

FORTRAN II

Contributed:
Roland Jahn
HP, Medical Electronics Division

A405, RANDOM NUMBER GENERATORS

22265A, FLOATING POINT RANDOM NUMBER GENERATOR

This function generates random numbers between "0" and "1" in floating point and returns the values in the A and B registers.

Assembly language, relocatable.

Contributed:
Dieter Schmidtke
HP, Germany/Frankfurt

22308A, GAUSSIAN RANDOM NUMBER GENERATOR

This ALGOL real procedure Gauss (I) generates Gaussian (normal) distributed random numbers with mean MY = 0 and variance SIGMA 2 = 1. The procedure requires two random numbers X_1 and X_2 called from the assembly language function RANDM which generates random numbers in the interval (0, 1). The test case GAUT plots the distribution in the form of a histogram with mean zero and variance one. FORTRAN and ALGOL callable.

ALGOL/Assembly Language, relocatable.

Contributed:
Dr. Rolf Robcke
HP, Germany/Frankfurt

A407, NON-PARAMETRIC STATISTICS

22158B, KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST

For a maximum of 999 data points, this program performs the Kolmogorov-Smirnov goodness-of-fit test for a specified probability distribution. The source data can be tested for fit against any of the following functions: binomial, chi square, F, normal, Poisson, or Student's t. The user has the option of (a) specifying the number of class intervals, (b) letting the program generate class intervals by use of Sturge's rule, or (c) specifying the number of intervals and upper bounds of each interval. The program is part of the Stat-Pack group.

Equipment required is 8K of core storage.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22151B, RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING

This program performs an analysis of variance on a randomized complete block design and subsampling. A maximum of 30 treatments and 30 blocks can be handled. The program is part of the Stat-Pack group.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22325A, COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE TO CELSIUS DEGREES CONVERSION ROUTINE

This subroutine accepts a value of the voltage read from a copper-constantan thermocouple in microvolts and returns a temperature value in degrees Centigrade. This value is correct to .1 of a Celsius degree. The method for determinging the temperature is interpolation of standard thermocouple tables at 10 degree intervals.

FORTRAN II.

Contributed:
Rodney C. Williams and William L. McLain
Wake Forest University

01530A, ECG INTERPRETIVE SYSTEM

The HP 1530 ECG Interpretive System provides patient history and billing routines and two analysis programs to acquire and process ECG data via telephone-linked terminals or analog tape (batch mode). One analysis program uses the twelve standard leads; the other uses three Frank orthogonal leads.

The system has two versions: Version A, controlled by a modified RTE, requires 16K core memory; Version B, controlled by the 2005C RTE, requires 24K. Recommended system equipment includes:

- HP 2761A Optical Mark Reader
- HP 2748A Punched Tape Reader
- HP 2754B Heavy-Duty Teleprinter
- HP 5614A Character Printer
- HP 5610/11A Data Acquisition Subsystem
- HP 5615A Data Receiver/Controller
- HP 3960A-E15 Analog Tape Recorder
- HP 5613A Three-channel ECG Recorder
- HP 2766A Disc Memory (with HP 2772A Power Supply)

Assembly language, relocatable (12-lead program) FORTRAN/Assembly language, relocatable (Frank-lead program)

HP supported:
Medical Electronics Division

05690A, COMPUTERIZED CARDIAC CATHETERIZATION LABORATORY SYSTEM

This system centralizes and automates the processing of patient information obtained during cardiac catheterization from ECG electrodes, pressure transducers, a dye densitometer and manual entries. Using DOS or DOS-M, the system opens and maintains a patient's file. Both unprocessed and pre-analyzed data are entered throughout the catheterization procedure.

A typical hardware configuration includes:

- HP 5691A Keyboard
- HP 5692A Interface/Switching Control Panel
- HP 2100 Computer (minimum 8K memory)
- HP 5610A Analog to Digital Converter
- HP 5611A Pacer
- HP 2752A Teletype
- HP 5667A Video Monitor
- HP 5662A Scan Converter
- HP 8890A Catheterization Laboratory Recording System

FORTRAN/Assembly language, relocatable.

HP supported:
Medical Electronics Division

22221B, HP BIOMEDICAL RESPONSE AVERAGING PROGRAM

The HP Biomedical Response Averaging Program was written in conjunction with the University of Michigan's Electroencephalograph Laboratory. The University uses the program to analyze brain response to physiological stimuli; a 24-channel electroencephalograph being the response sensor. It should be noted, however, that the program is by no means constrained to EEG use. The signal-averaging technique employed can be a powerful aid in many fields, including the following:

a. High-resolution spectroscopy, where signal averaging can help overcome stability problems.

b. Electrocardiograph work.

c. Fluorescent decay studies.

The program, which is independent, is furnished on two paper tapes. One contains the compiler, which permits user input at the teleprinter in conversational form. The second tape contains the signal averaging program, which provides for data accumulation, statistical analysis, the monitoring of four channels on an oscilloscope, and generation of a report furnishing a statistical analysis for each of the 24 data channels.

Signal averaging is conducted at 1 millisecond per point or longer. Additional features include pre-stimulus condition averaging, dual-resolution sweeps, computation of confidence statistics and weighted averages, and pre-set sweep count. The averages, weighted averages, and confidence statistics for any selected data channel are recorded on an X-Y plotter, furnishing a permanent record in graph form.

Equipment required is the following:

a. 8K of core storage.

b. HP 2310C Miniverter System, with options 01 and 03.

c. HP 7004A X-Y Recorder, with interface kit.

d. Any high quality general purpose oscilloscope, with 4-channel vertical amplifier section and D/A interface kit.

e. HP 12539 Time Base Generator.

f. HP 12566 Duplex Register.

Assembly language, absolute.

Contributed:
George Moore
HP, Data Systems

22240A, LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM

This program enables early detection of the adverse effects of tobacco smoke or other irritants on lung function by determining the resistance to airflow and the compliance of the lung. Intrapleural pressure, volume, and airflow are measured over a breath cycle; tidal volume, respiratory minute volume, respiratory rate, the lung resistances over various parts of the expiration and inspiration cycles, and the dynamic compliance of the total lung are calculated.

The complete cycles are analyzed, each parameter is printed and a further calculation is made of the mean, standard deviation, and coefficient of variance for each parameter.

Equipment required includes 8K memory, 2752A teleprinter, HP 5610 Analog-to-digital Converter, HP 7761A Recording System, HP 350-110CM Preamplifier (2 off), HP 350-5000A Integrating Preamplifier, HP 270 Pressure Transducer, and an HP 268 Flow Transducer.

FORTRAN II.

Contributed:
Glyn Harris
HP, England/Slough

22384A, EFFECTIVE PERCEIVED NOISE LEVEL

This program computes the effective perceived noise level (EPNL) of an airplane from the take-off or landing profile according to the American (FAA) and English regulations.

Equipment required includes 8K memory, an HP 12539 Time Base Generator, an HP 2752 Teleprinter, any HP Photoreader and punch, an HP 8064A Analyzer, and an HP 15189A Interface Kit, and HP 12555 D/A Converter, and an HP 1208A X-Y Display.

Assembly language, relocatable.

Contributed:
Frank Rochlitzer
HP, Germany/Boeblingen

A700, BUSINESS AND MANUFACTURING APPLICATIONS

A701, JOB REPORTING

2378A, RTE LOGBOOK

'he two FORTRAN programs in this package allow a user o "log": time-in of job, description of job, day, time-out f job; and generate a periodic summary report which ıcludes the number of working days, the number of omputer hours available, one-line printouts of each job run long with its run-time, total user hours, total computer ıours, and other information pertinent to an RTE environnent. Requires 16K core.

FORTRAN II.

Contributed:
Eugene Burmeister
HP, Loveland Division

A720, EDUCATIONAL ADMINISTRATION

22266A, MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM

This package consists of two assembler subroutines and one FORTRAN main program to read HP 9320-2062 Educational Test Scoring Mark Sense Cards, calculate individual student scores and overall class statistics, and print the results. The first card read contains the correct answers, and each successive card is graded against that master. Incorrect answers are tabulated for each student, as well as the number of times each answer is chosen for each multiple choice question.

Equipment required includes 8K memory, and HP 2761-07 Mark Sense Reader, and an HP 2752A teleprinter.

FORTRAN II.

Contributed:
Charles Chernack
HP, Eastern Sales Region

22332A, THE EXECUTIVE GAME

THE EXECUTIVE GAME simulates a small industry in which there are up to 9 companies manufacturing and selling a single product. Participants are organized into teams which operate their hypothetical companies in competition with one another. The purpose of THE EXECUTIVE GAME is to provide an imaginary business environment in which participants can practice top-management decision making. The GAME is divided into two programs, and information is transferred between the two programs by means of COMMON storage. Part I accepts and processes team decisions, and Part II outputs Information on Competitors, an Operating Statement, a Cash Flow Statement, an Income Statement, and a Balance Sheet for each team. An additional YEAREND program evaluates each team's performance at the end of each four quarters of play. A text of player's instructions is published by Richard D. Irwin, Inc. (Henshaw and Jackson, *The Executive Game*, 1966). THE EXECUTIVE GAME can be a stimulating and effective learning tool for high school, undergraduate, and graduate business classes, and in management development programs. Minimum hardware requirements include an 8K computer and a teletype.

FORTRAN II.

Contributed:
Dr. Richard J. Ward
Bowling Green State University

22298A, BATTLESHIP

Battleship is a computer game for RTE in which five ships are randomly placed in a matrix by the program. The location of these ships is found by the player who proceeds by trial and error until a hit is achieved. Through successive "hits," he can reconstruct the random matrix.

FORTRAN IV.

Contributed:
Eugene Burmeister
HP, Loveland Division

22162B, X-Y PLOTTER ON PRINTER

This routine produces graphs on a teleprinter. An X array is scaled to suit the printed graph, and is plotted against either the element number in the array or against another array, Y. Each data point is marked on the graph as a letter "X", and the coordinates of the point also are printed. The routine can commence at any point in the array, and the output can be either a print plot or a bar plot. A maximum of 200 (X,Y) data pairs can be accepted. The routine is part of the Stat-Pack group, and is FORTRAN callable.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22164B, HISTOGRAM PLOTTER PROGRAM

This program sorts a single-dimension floating point array into ascending sequence, and (a) produces a histogram of the data points on the teleprinter or line printer, or (b) furnishes the frequency distribution of the data points, or (c) produces both a histogram and a frequency distribution. The program is part of the Stat-Pack group.

Equipment required is at least a 16K computer.

FORTRAN II.

Contributed:
Roland Jahn
HP, Medical Electronics Division

22262A, THREE DIMENSIONAL PLOT SUBROUTINE

This routine projects a three-dimensional object in perspective on a simple X-Y plotting system or graphic display terminal. It transforms an (X, Y, Z) coordinate in three space to an orthographic projection in two space, using four calls. The first call defines the angles of the coordinate axes X, Y, Z allowing display of various rotations of an object. The second and third calls set minimum and maximum (X, Y, Z) values, while the fourth call transforms an (X, Y, Z) coordinate in three space to an (IX, IY) coordinate representation in two space.

FORTRAN II.

Contributed:
John S. Shema
Montana State University

22324A, BCS VARIABLE SIZE PLOT FOR THE CALCOMP 565

LINA is a subroutine designed to plot a line and/or symbols through the successive data points in arrays that have been previously scaled. It differs from HP LINE in that the user may specify the size of the symbol. This may prove helpful when drawings are to be reduced photographically for use in publication. This operates in conjunction with the Plotter Library, HP 20201B.

Equipment required includes 8K core, and the Calcomp Plotter Model 565.

FORTRAN II.

Contributed:
Rodney C. Williams and William L. McLain
Wake Forest University

22348A, X-Y PLOTTER FOR 11" PAGE PRINTER

This program plots X-Y graphs on an 11" page printer from a given set of data points. The data is input free field, ordered, and scaled in both dimensions by the program to fit on one page. Two versions of the program are included; one formatted for output to an HP 2767 line printer, and the other for a teleprinter.

This program allows a quick display of data with the limited resolution of a character printer. Up to 100 samples of 10 different variables can be input with the line printer version. Up to 120 samples of 4 different variables can be input with the teleprinter version.

Equipment required includes 8K core, any HP teleprinter, and, optionally, any HP photoreader and an HP 2767 line printer.

FORTRAN II.

Contributed:
Roland E. Jahn
HP, Medical Electronics Division

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2114B HP 12616 HIGH SPEED I/O CHANNEL TEST	(A218)	20546A
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GENERAL PURPOSE REGISTER DIAGNOSTIC	(A218)	24163A
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HP 2100A DMA DIAGNOSTIC	(A218)	24195A
HP 2100A TTY MULTIPLEXOR TEST	(A218)	24202A
2100A POWER FAIL DIAGNOSTIC	(A218)	24206B

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HP 2100A RELAY REGISTER TEST	(A218)	24216A
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SUBSYSTEM

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RELOCATABLE MODULE LISTER	(A108)	22381A
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SYSTEM LIBRARIES (021)

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RTE/DOS RELOCATABLE LIBRARY, NON-EAU	(A021)	24150C
RTE/DOS RELOCATABLE LIBRARY, EAU	(A021)	24151C
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DOS-M LIBRARIAN	(A107)	22282A
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SYSTEM UTILITIES

CLEAR JOB BINARY AREA IN DOS/DOS-M	(A022)	22273A
REMOTE HP 2100 ACCESS TO A 32K DOS	(A022)	22375A
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SYSTEMS OF LINEAR EQUATIONS (314)

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SIMULTANEOUS EQUATION SOLVER PROGRAM	(A314)	22122A
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ZERO	(A108)	22400A

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TELECOMMUNICATIONS EQUIPMENT TEST (217)

HP 12589A AUTOMATIC CALLING UNIT INTERFACE CARD DIAGNOSTIC	(A217)	20290A
TELEPRINTER OFF-LINE TEST	(A217)	20343A
HP 12622 SEND (ONLY) INTERFACE TEST	(A217)	20393A
2116 SERIAL TELEPRINTER TEST	(A217)	20407A
2116 TELEPRINTER TEST	(A217)	20417C
2115/2114 TELEPRINTER TEST	(A217)	20420B
HP 12587 SEND/RECEIVE INTERFACE TEST	(A217)	20535A
HP 12621 RECEIVE (ONLY) INTERFACE TEST	(A217)	20538A
HP 2600 KEYBOARD-DISPLAY TERMINAL TEST	(A217)	24187C
HP 2100A KEYBD-DISPLAY TERMINAL (2600) TEST	(A217)	24200A
HP 2100A AUTO CALL UNIT INTERFACE (12589) TEST	(A217)	24217A
HP 2100A SEND (ONLY) INTERFACE (12622) TEST	(A217)	24219A
HP 2100A RECEIVE (ONLY) INTERFACE (12621) TEST	(A217)	24220A
HP 2100A SEND/RECEIVE INTERFACE (12587) TEST	(A217)	24221B

TELEPRINTER

BCS TTY DRVR. D.00	(A002)	20017C
4K SIO BUFFERED TELEPRINTER DRIVER	(A002)	20322A
8K SIO BUFFERED TELEPRINTER DRIVER	(A002)	20323A
12K SIO BUFFERED TELEPRINTER DRIVER	(A002)	20329A
16K SIO BUFFERED TELEPRINTER DRIVER	(A002)	20330B
RTE TELEPRINTER DRIVER (DVR00)	(A002)	20741D
DOS TELEPRINTER DRIVER (DVR00)	(A002)	20985D
TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC	(A002)	22237C
DOS-M REMOTE TAPE READER DRIVER (DVR00,DVR07)	(A002)	22246A
4K SIO TELEPRINTER DRIVER, LP-COMPAT	(A002)	24123A

section III
ordering information

OPTION NUMBERS

Software products are ordered by specifying the program number, together with an option number which indicates the type of product required. The option number consists of a letter followed by two digits, for instance: A02, B01, or L00. The letter indicates the form of product required, and the digits indicate the specific media by means of which it is to be supplied. The form indicated by each letter is listed below.

a. "B" indicates binary tape or cards.

b. "S" indicates source-language tape or cards.

c. "L" indicates a program listing.

d. "A" indicates binary tape or cards, source-language tape or cards, and a program listing.

e. "D" indicates all documentation other than a program listing.

f. "K" indicates source-language tape or cards, and all documentation other than a program listing.

The digits identifying the specific physical form of a software product have the following significance:

a. "00" indicates printed material only.

b. "01" indicates punched paper tape.

c. "02" indicates punched metallized-Mylar tape.

d. "11" indicates punched or mark-sense cards.

e. "20" indicates 7-track magnetic tape.

f. "21" indicates 9-track magnetic tape.

To take an example, "D00" indicates the documentation for the specified program, other than the program listing. (Documentation is made available separately so the user may examine it to see if the program fits his needs.

To illustrate further, the following entry appears in the price list:

20014A (A014)
BCS PLOTTER DRIVER D.10

B01 - $ 10
B02 - $ 20
S01 - $ 15
S02 - $ 25
L00 - $ 5
A01 - $ 30
A02 - $ 50

To order the program in binary form on punched paper tape, together with a program listing, the order appears as follows:

20014A B01 $10
20014A L00 $ 5

It should be noted that some types of software product are unavailable for certain programs. Before ordering, be sure the product required is included in the price list.

ORDERING PROCEDURE

Orders should be sent to the nearest Hewlett-Packard Sales and Service Office. These offices, and their addresses, are listed at the back of this catalog. Shipments normally are by Air Parcel Post. No charge is made for postage.

PRICE LIST

The price list is furnished on the pages which follow.
Prices are subject to change.

01530A (A506) ECG INTERPRETIVE SYSTEM

For ordering information please contact your local HP Sales Office

05680A (A506) MEDACE

For ordering information please contact your local HP Sales Office

05690A (A506) COMPUTERIZED CARDIAC CATHETERIZATION LABORATORY SYSTEM

For ordering information please contact your local HP Sales Office

13020C (A204) 7970/13181A DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

13021A (A016) 8K SIO HP 7970 MT DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

13022A (A016) 16K SIO HP 7970 MT DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

13023B (A016) BCS MAGNETIC TAPE DRIVER
B01 — $ 10
B02 — 20
S01 — 45
S02 — 65
L00 — 5
A01 — 60
A02 — 90
D00 — 1

13024A (A016) DOS HP 7970 MAGNETIC TAPE DRIVER (DVR23)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

13025A (A016) RTE HP 7970 MAGNETIC TAPE DRIVER (DVR23)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

13026B (A016) BCS 7 TRACK DRIVER W/O DMA
B01 — $ 10
S01 — 35
L00 — 5
D00 — 1

13027B (A016) BCS MT DRVR 7T W/DMA
B01 — $ 10
S01 — 35
L00 — 5
D00 — 1

13028D (A204) 7970/13182 7 TRACK DIAGNOSTIC
B01 — $ 10
S01 — 70
L00 — 10

13029A (A016) 8K SIO MT DRVR 7T
B01 — $ 10
S01 — 20
L00 — 5
D00 — 1

13030A (A016) 16K SIO MT DRVR 7T
B01 — $ 10
S01 — 20
L00 — 5
D00 — 1

13031A (A204) 7970E/13183 DIAGNOSTIC
B01 — $ 10
S01 — 75
L00 — 10

13041B (A203) HP 7900/13210 DIAGNOSTIC
B01 — $ 15
S01 — 140
L00 — 10

14900B (A006) BCS 6936A MULTIPROGRAMMER DRIVER (D.61)
B01 — $ 10
S01 — 15
L01 — 5
A01 — 30
D00 — 1

14901A (A202) 6936A 21XX VERIFICATION AND TEST
B01 — $ 10
S01 — 90
L00 — 25
A01 — 125
D00 — 2

14909A (A006) 6940A DRIVER FOR 24000A BASIC
B01 — $ 10
S01 — 15
L00 — 5
A01 — 30

20001C (A017) 4K BCS RELOCATING LOADER
B01 — $ 10
B02 — 20
S01 — 55
S02 — 85
L00 — 10
A01 — 75
A02 — 115

20002B (A211) BCS DEBUG ROUTINE
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

20005B (A009) BCS TAPE READER DRIVER D.01
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20006B (A009) BCS TAPE PUNCH DRIVER D.02
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20007A (A016) BCS INCREMENTAL MAGNETIC TAPE DRIVER (D.20)
B01 — $ 10
B02 — 20
S01 — 25
S02 — 15
L00 — 5
A01 — 30
A02 — 50

20008B (A006) BCS 8-4-2-1 DATA SOURCE INTERFACE DRIVER (D.40)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20009B (A006) BCS DIGITAL VOLTMETER PROGRAM DRIVER (D.41)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20010C (A006) BCS 8-4-2-1 SCANNER CONTROL DRIVER (D.42)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20011B (A006) BCS 8-4-2-1/4-2-2-1 DATA SOURCE INTERFACE DRIVER (D.40A)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 25
A01 — 25
A02 — 45

20012C (A006) BCS 8-4-2-1/4-2-2-1 SCANNER CONTROL DRIVER (D.42A)

B01	$ 15
B02	25
S01	15
S02	25
L00	15
A01	30
A02	50

20013E (A016) BCS HP 2020 MAGNETIC TAPE DRIVER (D.21)

B01	$ 10
B02	20
S01	35
S02	55
L00	5
A01	50
A02	80

20014A (A014) BCS PLOTTER DRIVER (D.10)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20016A (A009) BCS TAPE PUNCH DRIVER, IBM 8-LEVEL (D.02A)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20017C (A002) BCS TTY DRVR. D.00

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20018G (A017) BCS RELOCATING LOADER

B01	$ 10
B02	20
S01	60
S02	90
L00	10
A01	80
A02	120

20019C (A010) BCS CARD READER DRIVER (D.11)

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20021C (A008) PREPARE CONTROL SYSTEM

B01	$ 10
B02	20
S01	85
S02	135
L00	10
A01	105
A02	165

20022E (A016) BCS HP 3030 MAGNETIC TAPE DRIVER (D.22)

B01	$ 10
B02	20
S01	30
S02	50
L00	5
A01	45
A02	75

20024A (A006) BCS DIGITAL VOLTMETER PROGRAM DRIVER (D.41B)

B01	$ 10
B02	20
S01	10
S02	20
L00	5
A01	25
A02	45

20025A (A006) BCS 2912 SCANNER CONTROL DRIVER (D.42B)

B01	$ 10
B02	20
S01	10
S02	20
L00	5
A01	25
A02	45

20028B (A006) BCS 2323A SUBSYSTEM DRIVER ANALOG SCAN SCN-12 (D.77)

B01	$ 10
B02	20
S01	10
S02	20
L00	5
A01	25
A02	45

20072C (A012) VERIFICATION: DACE AXEPT
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20073C (A013) BCS 5610A A-TO-D DRIVER, NON-DMA, (D.56)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20074A (A013) FORTRAN/ALGOL INTERFACE ROUTINE (L5610)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20075D (A216) VERIFY 5610A A-TO-D TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20076A (A006) BCS 2312A DRIVER (D.55)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20077B (A202) HP 2312A SUBSYSTEM TEST
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20078A (A006) BCS 2312A DRIVER/FORTRAN INTERFACE ROUTINE (L2312)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20079A (A015) 8K SIO DISC/DRUM DRIVER
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60
D00 — 1

20081A (A015) 16K SIO DISC/DRUM DRIVER
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60
D00 — 1

20093C (A013) BCS 5610A A-TO-D DRIVER, DMA, (D.56A)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20094B (A013) MULTI/MINIVERTER SCAN ROUTINE SCNMV (D.76)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20096A (A105) CONVERSION ROUTINE MCONV
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20098C (A003) BCS 40 BIT OUTPUT REGISTER DRIVER D.54
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20100B (A101) SYMBOLIC EDITOR
B01 — $ 15
B02 — 25
S01 — 70
S02 — 100
L00 — 5
A01 — 90
A02 — 130
D00 — 2.50

20201C (A900) BCS PLOTTER LIBRARY
B01 — $ 15
B02 — 25
S01 — 75
S02 — 135
L00 — 10
A01 — 100
A02 — 170

20209C (A012) DACE LIBRARY
B01 — $ 10
B02 — 20
S01 — 60
S02 — 90
L00 — 5
A01 — 75
A02 — 115

20210A (A105) CONVERSION ROUTINE ICONV
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20235A (A006) RTE 2323A SUBSYSTEM DRIVER (DVR77)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20236A (A006) RTE 2320A/2322A SUBSYSTEM DRIVER (DVR76)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20237A (A107) LIBRARIAN
B01 — $ 5
B02 — 15
S01 — 15
S02 — 25
L00 — 5
A01 — 25
A02 — 45

20288A (A105) RTE CONVERSION ROUTINE CONV
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20290A (A217) HP 12589A AUTOMATIC CALLING UNIT INTERFACE CARD DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 10
A01 — 40
A02 — 60
D00 — 1

20295A (A006) RTE 12604B DATA SOURCE INTERFACE DRIVER (DVR40)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20297D (A013) RTE 2310/2311 SUBSYSTEM DRIVER (DVR56)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20301B (A008) 4K SIO SYSTEM DUMP
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20303A (A009) 4K SIO TAPE READER DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20304A (A009) 4K SIO TAPE PUNCH DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20306A (A009) 8K SIO TAPE READER DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20307A (A009) 8K SIO TAPE PUNCH DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20312A (A106) PUNCH/VERIFY ROUTINE
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20313B (A008) 8K SIO SYSTEM DUMP
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20314D (A016) 8K SIO HP 2020 MAGNETIC TAPE DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20315C (A016) 4K SIO HP 2020 MAGNETIC TAPE DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20316A (A009) 8K SIO TAPE PUNCH DRIVER, IBM 8-LEVEL
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20317A (A009) 4K SIO TAPE PUNCH DRIVER, IBM 8-LEVEL
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20319A (A009) 16K SIO TAPE READER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20320A (A009) 16K SIO TAPE PUNCH DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20321C (A016) 16K SIO HP 2020 MAGNETIC TAPE DRIVER

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20322A (A002) 4K SIO BUFFERED TELEPRINTER DRIVER

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20323A (A002) 8K SIO BUFFERED TELEPRINTER DRIVER

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20324B (A010) 8K SIO CARD READER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20327A (A009) 12K SIO TAPE READER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20328A (A009) 12K SIO TAPE PUNCH DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	10
A01	35
A02	55

20329A (A002) 12K SIO BUFFERED TELEPRINTER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20330B (A002) 16K SIO BUFFERED TELEPRINTER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20331C (A016) 8K SIO HP MAGNETIC TAPE DRIVER

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20332A (A010) 16K SIO CARD READER DRIVER

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20334C (A016) 16K SIO HP 3030 MAGNETIC TAPE DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20335A (A008) 16K SIO SYSTEM DUMP
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20336B (A016) 4K SIO HP 3030 MAGNETIC TAPE DRIVER
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20337D (A202) 1260B DSI DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 55
S02 — 95
L00 — 5
A01 — 70
A02 — 120

20338D (A216) 2310C VERIFICATION TEST
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 5
A01 — 35
A02 — 55

20339B (A216) TEST: 2310A/B SUBSYSTEM
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 5
A01 — 35
A02 — 55

20341B (A202) TEST: 2912 SCANNER/DVM
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20343A (A217) TELEPRINTER OFF-LINE TEST
B01 — $ 5
B02 — 15
D00 — 1

20344A (A216) DIAGNOSTIC: 10-BIT A-TO-D CARD 12564A
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20345A (A218) HP 12598 MEMORY PARITY CHECK DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 35
A01 — 30
A02 — 50

20347B (A214) HP 2761A-007 OPTICAL MARK READER DIAGNOSTIC, 12602A KIT
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20348C (A202) DIAGNOSTIC 40-BIT OUTPUT REGISTER 12556B
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20349D (A202) VERIFY 2911 SCANNER/DVM TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20390A (A205) HP 12560A PLOTTER DIAGNOSTIC
B01 — $ 10
S01 — 20
L00 — 5

20392A (A018) BASIC SYSTEM
B01 — $ 25
B02 — 45
S01 — 245
S02 — 385
L00 — 30
A01 — 300
A02 — 460
D00 — 2.50

20393A (A217) HP 12622 SEND (ONLY) INTERFACE TEST
B01 — $ 15
B02 — 25
S01 — 55
S02 — 85
L00 — 5
A01 — 75
A02 — 115

20396A (A013) RTE 10-BIT 12564A A-TO-D CARD DRIVER (DVR57)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 5
A01 — 35
A02 — 55

20398A (A013) RTE 2312A DRIVER (DVR55)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20400A (A209) ALTER-SKIP INSTRUCTION TEST
B01 — $ 15
B02 — 25
S01 — 155
S02 — 235
L00 — 10
A01 — 180
A02 — 270

20401B (A209) MEMORY REFERENCE INSTRUCTION TEST
B01 — $ 15
B02 — 25
S01 — 75
S02 — 105
L00 — 10
A01 — 100
A02 — 140

20402D (A209) SHIFT-ROTATE INSTRUCTION TEST
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

20403A (A208) LOW MEMORY ADDRESS TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20404A (A208) HIGH MEMORY ADDRESS TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20405A (A208) 2116A LOW MEMORY CHECKERBOARD TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20406A (A208) 2116A HIGH MEMORY CHECKERBOARD TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20407A (A217) 2116 SERIAL TELEPRINTER TEST
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20408C (A213) HP 2737 PUNCH TAPE READER TEST
B01 — $ 10
B02 — 20
S01 — 50
S02 — 70
L00 — 10
A01 — 70
A02 — 100

20409C (A213) HP 2753 TAPE PUNCH TEST
B01 — $ 15
B02 — 25
S01 — 50
S02 — 70
L00 — 10
A01 — 75
A02 — 105

20411B (A204) TEST: KENNEDY INCREMENTAL MAGNETIC TAPE UNIT
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20412B (A218) 2116 HP 12539 TIME BASE GENERATOR TEST
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

20415A (A209) INTERRUPT DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20417C (A217) 2116 TELEPRINTER TEST
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

20418D (A218) MEMORY PROTECT DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

20420B (A217) 2115/2114 TELEPRINTER TEST
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

20421A (A218) 2115/2114 HP 12539 TIME BASE GENERATOR TEST
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

20423A (A218) HP 12551 RELAY REGISTER DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20426A (A208) 2116B HIGH MEMORY CHECKERBOARD TEST

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20427A (A208) 2116B LOW MEMORY CHECKERBOARD TEST

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20428B (A218) HP 12588 POWER FAIL WITH AUTO-RESTART TEST

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20429C (A202) DIAGNOSTIC 2912A PROGRAMMER CARD

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20430B (A006) 2402A PROGRAMMER/DATE INTERFERENCE DIAGNOSTIC

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20431B (A218) DIAGNOSTIC: 40-BIT OUTPUT REGISTER (12556A)

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20433E (A204) HP 3030 MAGNETIC TAPE UNIT DIAGNOSTIC

B01	$ 10
B02	20
S01	60
S02	90
L00	10
A01	80
A02	120

20434B (A218) 2116 POWER FAIL INTERRUPT TEST

B01	$ 10
B02	20
S01	30
S02	50
L00	5
A01	45
A02	75
D00	1

20435A (A218) DMA DIAGNOSTIC

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20436A (A202) DIAGNOSTIC: DVS PROGRAM CARD 12661A

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20439A (A218) HP 12584 TELEPRINTER MULTIPLEXOR INTERFACE TEST

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20501E (A006) BCS SCN-ANALOG 8-4-2-1 SCAN ROUTINE (D.77)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20502B (A003) TIME BASE GENERATOR DRIVER (D.43)
B01 — $ 15
B02 — 25
S01 — 15
S02 — 25
L00 — 15
A01 — 30
A02 — 50

20512A (A208) 2115A/14A HIGH MEMORY CHECKERBOARD TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20513A (A208) 2115A/14A LOW MEMORY CHECKERBOARD TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20516B (A204) HP 2020 MAGNETIC TAPE UNIT DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 10
A01 — 60
A02 — 90

20517C (A006) BCS SCN-ANALOG 4-2-2-1 SCAN ROUTINE (D.77)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20520C (A010) 4K SIO MARK SENSE CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20521C (A010) 8K SIO MARK SENSE CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20522C (A010) 16K SIO MARK SENSE CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20524A (A218) 2114B DMA GENERAL DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 35
S02 — 55
L00 — 5
A01 — 50
A02 — 80

20525A (A218) 2114B DMA RATE AND TRANSFER DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20527B (A011) 4K SIO HP 2778A LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45
D00 — 1

20528A (A011) 8K SIO HP 2778A LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45
D00 — 1

20529A (A011) 16K SIO HP 2778A LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45
D00 — 1

20530D (A202) VER34 2321 VERIFICATION
B01 — $ 15
B02 — 25
S01 — 45
S02 — 75
L00 — 5
A01 — 65
A02 — 105

20532A (A006) BCS 2321A SUBSYSTEM (3450/2911A) SCAN ROUTINE SCN 34 (D.77)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20533A (A105) CONVERSION ROUTINE CON34
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20535A (A217) HP 12587 SEND/RECEIVE INTERFACE TEST
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

20538A (A217) HP 12621 RECEIVE (ONLY) INTERFACE TEST
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

20543A (A218) CONTROLLER MICROCIRCUIT DIAGNOSTIC
B01 — $ 10
S01 — 30
L00 — 5

20546A (A218) 2114B HP 12616 HIGH SPEED I/O CHANNEL TEST
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

20548A (A018) FORTRAN COMPILER
B01 — $ 25
B02 — 45
S01 — 240
S02 — 390
L00 — 30
A01 — 295
A02 — 465
D00 — 2.50

20549A (A018) 4K FORTRAN COMPILER
B01 — $ 40
B02 — 80
S01 — 445
S02 — 755
L00 — 40
A01 — 525
A02 — 875
D00 — 2.50

20581A (A014) DOS PLOTTER DRIVER (DVR10)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45
D00 — 1

20583C (A216) CALIBRATION 2311 — TTY
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20594A (A008) 8K MAGNETIC TAPE SYSTEM

B01	$ 30
B02	60
S01	55
S02	85
L00	15
A01	100
A02	160
D00	3.50

20595A (A008) 16K MAGNETIC TAPE SYSTEM

B01	$ 30
B02	60
S01	55
S02	85
L00	15
A01	100
A02	160
D00	3.50

20596F (A001) 2000A TIME-SHARED BASIC SYSTEM

This program is available to users of 2000A Time Shared Basic Systems. For further information, please contact an HP Sales and Service Office.

20597B (A007) DISC OPERATING SYSTEM (2770 SERIES DISC/DRUM)

B01	$ 65
B02	105
S01	420
S02	630
L00	40
A01	525
A02	775
D00	3

20598C (A018) DOS ASSEMBLER

B01	$ 75
B02	145
S01	185
S02	285
L00	40
A01	300
A02	370

20599C (A018) DOS FORTRAN

B01	$ 70
B02	120
S01	345
S02	555
L00	45
A01	460
A02	720

20741D (A002) RTE TELEPRINTER DRIVER (DVR00)

B01	$ 10
B02	20
S01	20
S02	30
L00	5
A01	35
A02	55

20743D (A009) RTE TAPE READER DRIVER (DVR01)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20745B (A009) RTE HIGH SPEED PUNCH DRIVER (DVR02)

B01	$ 10
B02	20
S01	10
S02	20
L00	5
A01	25
A02	45

20747C (A015) RTE DISC/DRUM DRIVER (DVR30)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20792C (A017) RTE RELOCATING LOADER

B01	$ 15
B02	25
S01	125
S02	195
L00	10
A01	150
A02	230

20800C (A011) RTE HP 2778A LINE PRINTER DRIVER (DVR12)

B01	$ 10
B02	20
S01	15
S02	25
L00	5
A01	30
A02	50

20802C (A008) SYSTEM DUMP
B01 — $ 10
B02 — 20
S01 — 35
S02 — 55
L00 — 5
A01 — 50
A02 — 80

20805C (A101) RTE EDITOR
B01 — $ 10
B02 — 20
S01 — 45
S02 — 75
L00 — 5
A01 — 60
A02 — 100

20806C (A016) RTE HP 3030 MAGNETIC TAPE DRIVER (DVR22)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

20808B (A014) RTE PLOTTER DRIVER (DVR10)
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45
D00 — 1

20810B (A900) RTE/DOS PLOTTER LIBRARY
B01 — $ 15
B02 — 25
S01 — 80
S02 — 140
L00 — 10
A01 — 105
A02 — 175

20817A (A010) BCS MARK SENSE DRIVER, KIT 12602A, (D.15)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20819C (A010) BCS MARK SENSE DRIVER, KIT 12602B, (D.15)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20821B (A010) RTE MARK SENSE DRIVER, KIT 12602B, (DVR15)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20823C (A010) DOS MARK SENSE DRIVER, (DVR15)
B01 — $ 10
S01 — 20
L00 — 5

20874D (A018) RTE ASSEMBLER
B01 — $ 75
B02 — 145
S01 — 180
S02 — 280
L00 — 40
A01 — 295
A02 — 465

20875E (A018) RTE FORTRAN
B01 — $ 70
B02 — 120
S01 — 340
S02 — 550
L00 — 45
A01 — 455
A02 — 715

20878B (A008) 2000A TO 2000B CONVERSION

This program is available to users of 2000B Time Share Basic Systems. For further information, please contact an HP Sales and Service Office.

20895C (A215) HP 2778 LINE PRINTER DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 35
S02 — 55
L00 — 10
A01 — 55
A02 — 85

20899B (A214) HP 2761-007 OPTICAL MARK READER DIAGNOSTIC, 12602B KIT
B01 — $ 15
B02 — 25
S01 — 70
S02 — 110
L00 — 10
A01 — 95
A02 — 145

20925C (A017) DOS RELOCATING LOADER
B01 — $ 15
B02 — 25
S01 — 75
S02 — 125
L00 — 10
A01 — 100
A02 — 160

20985D (A002) DOS TELEPRINTER DRIVER (DVR00)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

20987C (A009) DOS TAPE READER DRIVER (DVR01)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20989A (A009) DOS HIGH SPEED PUNCH DRIVER (DVR02)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20991C (A011) DOS HP 2778A LINE PRINTER DRIVER (DVR12)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20995B (A015) DOS DISC/DRUM DRIVER (DVR30)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

20997B (A016) DOS HP 3030 MAGNETIC TAPE DRIVER (DVR22)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 1

20999A (A215) HP 2767 LINE PRINTER DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 70
S02 — 110
L00 — 20
A01 — 100
A02 — 150

22001A (A006) HP 2911A/B CROSSBAR SCANNER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10
K02 — 20

22002A (A003) TIME-OF-DAY CLOCK
D00 — $ 2
K01 — 10
K02 — 20

22003A (A006) HP 2402A DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10
K02 — 20

22004A (A006) COUNTER DATA SOURCE INTERFACE — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22005B (A006) HP 2401C DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22006A (A006) HP 2401C DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22007A (A006) HP 3440A DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22008A (A006) HP 3460A DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22009B (A017) BOOTSTRAP LOADER GENERATOR
D00 — $ 2
K01 — 10

22013B (A018) INVERSE ASSEMBLER
D00 — $ 2
K01 — 10

22014A (A212) BINARY TAPE EDITOR
D00 — $ 2
K01 — 10

22015B (A212) BASIC LINE RESEQUENCER
D00 — $ 2
K01 — 10

22016C (A212) SYMBOLIC ALPHANUMERIC GENERATOR
D00 — $ 2
K01 — 10

22017A (A306) GAMMA FUNCTION ROUTINE
D00 — $ 2
K01 — 10

22018A (A306) K BESSEL FUNCTION ROUTINE
D00 — $ 2
K01 — 10

22019A (A306) I BESSEL FUNCTION ROUTINE
D00 — $ 2
K01 — 10

22020A (A306) Y BESSEL FUNCTION ROUTINE
D00 — $ 2
K01 — 10

22021A (A301) LOCATE MAXIMUM-MINIMUM INTEGER
D00 — $ 2
K01 — 10

22022A (A309) SOLUTION OF LINEAR LEAST SQUARES PROBLEMS
D00 — $ 2
K01 — 10

22023A (A310) TRAPEZOIDAL INTEGRATION ROUTINE
D00 — $ 2
K01 — 10

22024A (A310) TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT
D00 — $ 2
K01 — 10

22025A (A310) SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT
D00 — $ 2
K01 — 10

22026A (A310) HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE
D00 — $ 2
K01 — 10

22027B (A310) HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT
D00 — $ 2
K01 — 10

22028A (A310) HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE
D00 — $ 2
K01 — 10

22029A (A310) HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT
D00 — $ 2
K01 — 10

22030A (A311) COMPLEX ROOTS OF A REAL POLYNOMIAL
D00 — $ 2
K01 — 10

22031A (A312) ADD ROWS OF MATRICES
D00 — $ 2
K01 — 10

22032A (A312) RANK AND BASIS ROUTINE
D00 — $ 2
K01 — 10

22033A (A314) SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS
D00 — $ 2
K01 — 10

22034A (A314) SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX
D00 — $ 2
K01 — 10

22035A (A314) SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX

D00 — $ 2
K01 — 10

22036A (A316) REAL FOURIER TRANSFORM
D00 — $ 2
K01 — 10

22037B (A316) COMPLEX FOURIER TRANSFORM
D00 — $ 2
K01 — 10

22038A (A318) SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS
D00 — $ 2
K01 — 10

22039A (A408) MEAN, DEVIATION, AND CORRELATION COEFFICIENTS ROUTINE
D00 — $ 2
K01 — 10

22040A (A901) SCOPE DISPLAY DEMO
D00 — $ 2
K01 — 10

22041E (A106) PUNCHED TAPE DUPLICATOR
D00 — $ 2
K01 — 10

22042C (A008) AN HP 2116-FAMILY SIMULATOR FOR THE IBM 360
D00 — $ 2
K01 — 75

22044B (A009) RUN-TIME DATA INPUT FOR BASIC
D00 — $ 2
K01 — 10

22048A (A006) HP 2402A DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22053B (A006) HP 3450A DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22055A (A006) HP 3460 A/B DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22057A (A006) HP 2801A DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22059A (A006) HP 2912A REED SCANNER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22061A (A006) HP 2320 LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22062A (A006) HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22063A (A015) HP 2770A/2771A DISC DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22064A (A212) AUTOMATIC TABBING PROGRAM
D00 — $ 2
K01 — 10

22065A (A018) FORTRAN TRANSLATOR, IBM 1800 TO HP FORTRAN II
D00 — $ 2
K01 — 10

22066B (A006) HP 6130B DIGITAL VOLTAGE SOURCE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22068A (A006) HP 3450A DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22069A (A006) HP 2323A LOW SPEED A-TO-D SUB-SYSTEM DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22070A (A015) HP 2773A/74A/75A DRUM DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22071A (A003) HP 12539A TIME BASE GENERATOR DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22075A (A006) HP 5100B FREQUENCY SYNTHESIZER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22076A (A006) HP 5105A FREQUENCY SYNTHESIZER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22077B (A014) CALCOMP PLOTTER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22078B (A009) HIGH SPEED PUNCH DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22079B (A107) NUMERIC STRING SORT FOR ASCII RECORDS
D00 — $ 2
K01 — 10

22080A (A014) HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22081A (A104) BIT OPERATIONS (SET, CLEAR, TEST) — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22082B (A009) BASIC PHOTOREADER DATA INPUT
D00 — $ 2
K01 — 10

22084C (A301) INTEGRATED MATH CALCULATOR PROGRAM
D00 — $ 2
K02 — 10

22085B (A302) EXTENDED PRECISION CALCULATOR
D00 — $ 2
K01 — 10

22086A (A105) EBCDIC TO ASCII TRANSLATOR
D00 — $ 2
K01 — 10

22088A (A211) OCTAL UTILITY SYSTEM (HOCUS)
D00 — $ 2
K01 — 10

22089A (A212) TELEPRINTER OCTAL INPUT PROGRAM
D00 — $ 2
K01 — 10

22090A (A108) KEYBOARD TAPE GENERATOR
D00 — $ 2
K01 — 10

22092B (A011) 4K, 8K, OR 16K SIO OLIVETTI SV40 DRIVER
D00 — $ 2
K01 — 10

22093A (A105) ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE
D00 — $ 2
K01 — 10

22094A (A903) JEU DE MORPIONS (GAME OF TIC-TAC-TOE)
D00 — $ 2
K01 — 10

22095A (A011) BASIC HP 2778A LINE PRINTER DRIVER
D00 — $ 2
K01 — 10

22096A (A212) SCOPE SYMBOLIC LISTER
D00 — $ 2
K01 — 10

22097B (A302) DOUBLE PRECISION INTEGER LIBRARY
D00 — $ 2
K01 — 10

22098A (A006) HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22099A (A901) DOS DEMO
D00 — $ 2
K01 — 10

22100A (A016) FILE THREE INPUT FOR MTS ALGOL
D00 — $ 2
K01 — 10

22101B (A006) HP 2911A/B CROSSBAR SCANNER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22102B (A006) HP 3460A/B DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22013B (A006) HP 2401C DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22104B (A006) HP 2402A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22105A (A212) COMMENT INSERTER FOR ASSEMBLER PROGRAMS
D00 — $ 2
K01 — 10

22106B (A006) COUNTER DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22107B (A006) HP 2912A REED SCANNER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22108C (A006) HP 3450A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22109B (A006) HP 3440A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22110B (A015) HP 2773A/74A/75A DRUM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22111C (A015) HP 2770A/2771A DISC DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22112A (A003) HP 12539A TIME BASE GENERATOR DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22113B (A106) MTS PUNCHED TAPE DUPLICATOR
D00 — $ 2
K01 — 10

22114A (A101) REPRODUCE/EDIT PAPER TAPE
D00 — $ 2
K01 — 10

22116A (A107) ORDERING A FLOATING POINT ARRAY
D00 — $ 2
K01 — 10

22117A (A306) TRANSFORMATIONS
D00 — $ 2
K01 — 10

22118B (A312) MATRIX INVERSION SUBROUTINES
D00 — $ 2
K01 — 10
K02 — 20

22119A (A312) MATRIX ARITHMETIC SUBROUTINE
D00 — $ 2
K01 — 10

22120A (A312) MATRIX ARITHMETIC PROGRAM
D00 — $ 2
K01 — 10

22121A (A407) CROSS-TABULATION PROGRAM
D00 — $ 2
K01 — 10

22122A (A314) SIMULTANEOUS EQUATION SOLVER PROGRAM
D00 — $ 2
K01 — 10

22123A (A314) SIMULTANEOUS EQUATION SOLVER ROUTINE
D00 — $ 2
K01 — 10

22124A (A402) AUTOCORRELATION AND SPECTRAL DENSITY
D00 — $ 2
K01 — 10

22125A (A402) MOVING AVERAGES
D00 — $ 2
K01 — 10

22126A (A409) CROSS CORRELATION ANALYSIS
D00 — $ 2
K01 — 10

22127A (A403) DISCRIMINANT ANALYSIS PROGRAM
D00 — $ 2
K01 — 10

22128A (A404) LEAST SQUARES REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22129A (A404) LINEAR REGRESSION INTERVAL ESTIMATES
D00 — $ 2
K01 — 10

22130A (A404) POLYNOMIAL REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22131A (A404) POLYNOMIAL REGRESSION CONFIDENCE INTERVALS
D00 — $ 2
K01 — 10

22132A (A404) STEPWISE REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22133A (A404) BIOASSAY PROGRAM
D00 — $ 2
K01 — 10

22134A (A404) ORTHOGONAL REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22135A (A404) LINEAR REGRESSION WITH REPLICATION
D00 — $ 2
K01 — 10

22136A (A404) NONLINEAR REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22137A (A406) CUMULATIVE DISTRIBUTION PROGRAM
D00 — $ 2
K01 — 10

22138A (A407) KENDALL'S COEFFICIENT OF CONCORDANCE: W
D00 — $ 2
K01 — 10

22139A (A407) KENDALL'S COEFFICIENT OF CONCORDANCE
D00 — $ 2
K01 — 10

22140A (A407) KENDALL'S TAU CORRELATION
D00 — $ 2
K01 — 10

22141A (A408) GENERAL STATISTICS PROGRAM
D00 — $ 2
K01 — 10

22142B (A408) GENERAL STATISTICS FOR MULTIPLE GROUPS
D00 — $ 2
K01 — 10

22143A (A408) PROBABILITY SUBPROGRAMS
D00 — $ 2
K01 — 10

22144A (A310) INTEGRATION ROUTINE
D00 — $ 2
K01 — 10

22145B (A401) CONFIDENCE INTERVAL FOR MEAN AND VARIANCE OF A NORMAL DISTRIBUTION
D00 — $ 2
K01 — 10

22146C (A401) SAMPLE SIZE DETERMINATION ON THE SAMPLE VARIANCE
D00 — $ 2
K01 — 10

22147A (A407) MULTIPLE CORRELATION ROUTINE
D00 — $ 2
K01 — 10

22148A (A410) COMPLETELY RANDOMIZED DESIGN
D00 — $ 2
K01 — 10

22149A (A410) COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING
D00 — $ 2
K01 — 10

22150A (A410) RANDOMIZED COMPLETE BLOCK DESIGN
D00 — $ 2
K01 — 10

22151B (A410) RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING
D00 — $ 2
K01 — 10

22152A (A410) TWO-WAY FACTORIAL DESIGN
D00 — $ 2
K01 — 10

22153A (A410) THREE-WAY FACTORIAL DESIGN
D00 — $ 2
K01 — 10

22154A (A410) ANALYSIS OF VARIANCE INFORMATION GENERATOR
D00 — $ 2
K01 — 10

22155A (A407) DUNCAN'S MULTIPLE RANGE TEST
D00 — $ 2
K01 — 10

22156A (A401) PAIRED T-TEST
D00 — $ 2
K01 — 10

22157A (A401) BARTLETT'S HOMOGENEITY OF VARIANCE TEST
D00 — $ 2
K01 — 10

22158B (A407) KOLMOGOROV-SMIRNOV GOODNESS OF-FIT TEST
D00 — $ 2
K01 — 10

22159B (A401) CHI SQUARE GOODNESS-OF-FIT TEST
D00 — $ 2
K01 — 10

22160A (A401) TESTS OF HYPOTHESIS FOR VARIANCES
D00 — $ 2
K01 — 10

22161B (A401) TEST OF HYPOTHESIS FOR MEANS
D00 — $ 2
K01 — 10

22162B (A904) X-Y PLOTTER ON PRINTER
D00 — $ 2
K01 — 10

22163A (A904) TIME SERIES PLOTTER
D00 — $ 2
K01 — 10

22164B (A904) HISTOGRAM PLOTTER PROGRAM
D00 — $ 2
K01 — 10

22165A (A108) CARD TO MAGNETIC TAPE UTILITY
D00 — $ 2
K01 — 10

22166A (A108) MAGNETIC TAPE TO PRINT UTILITY PROGRAM
D00 — $ 2
K01 — 10

22167A (A107) ORDERING A FIXED POINT ARRAY
D00 — $ 2
K01 — 10

22168A (A107) RANKING A FLOATING POINT ARRAY
D00 — $ 2
K01 — 10

22169A (A107) ORDERING A FLOATING POINT ARRAY
D00 — $ 2
K01 — 10

22170A (A003) SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM
D00 — $ 2
K01 — 10

22171A (A101) FORTRAN UNIT REFERENCE NUMBER EDITOR
D00 — $ 2
K01 — 10

22172C (A112) IOC — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22173A (A212) I/O INSTRUCTION CONFIGURATOR
D00 — $ 2
K01 — 10

22174A (A207) BCS DUMP IN BBL FORMAT
D00 — $ 2
K01 — 10

22176A (A009) HP 2754A PUNCH/LIST IN KT MODE
D00 — $ 2
K01 — 10

22180C (A106) FAST PUNCH VERIFY
D00 — $ 2
K01 — 10

22181A (A016) RTE HP 2020 MAGNETIC TAPE DRIVER
D00 — $ 2
K01 — 10

22182A (A904) HISTOGRAM PLOTTER ROUTINE
D00 — $ 2
K01 — 10

22183A (A401) SAMPLE SIZE DETERMINATION TO TEST H0
D00 — $ 2
K01 — 10

22184A (A404) POOLING OF GROUPS IN REGRESSION
D00 — $ 2
K01 — 10

22185A (A404) MULTIPLE REGRESSION PROGRAM
D00 — $ 2
K01 — 10

22186A (A409) MULTIPLE CORRELATION MATRIX PROGRAM
D00 — $ 2
K01 — 10

22187A (A404) NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION
D00 — $ 2
K01 — 10

22188A (A404) NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION
D00 — $ 2
K01 — 10

22189B (A316) GENERAL FAST FOURIER TRANSFORM
D00 — $ 2
K01 — 10

22190A (A211) ABSOLUTE PROGRAM CONTROL SYSTEM
D00 — $ 2
K01 — 10

22191A (A212) NAM-ENT-EXT EDITOR
D00 — $ 2
K01 — 10

22192A (A313) EIGENVALUES OF A SYMMETRIC REAL MATRIX
D00 — $ 2
K01 — 10

22193A (A201) INTERPRETIVE BINARY SIMULATOR
D00 — $ 2
K01 — 10

22194A (A405) PSEUDO-RANDOM NUMBER GENERATOR
D00 — $ 2
K01 — 10

22195A (A003) PROGRAM EXECUTION TIMER
D00 — $ 2
K01 — 10

22197A (A106) SINGLE DRIVE MAGNETIC TAPE COPY PROGRAM
D00 — $ 2
K01 — 10

22198C (A102) MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM
D00 — $ 2
K01 — 20

22199A (A012) BASIC LANGUAGE DATA ACQUISITION SYSTEM
D00 — $ 10
K01 — 30

22200A (A006) WAVETEK BASIC DRIVER
D00 — $ 2
K01 — 10

22201D (A018) PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM
D00 — $ 2
K01 — 20

22204A (A104) DATA BLOCK MOVEMENT
D00 — $ 2
K01 — 10

22205A (A212) TABULATION AND FORM-FEED CALLS FOR HP 2754 TELEPRINTER
D00 — $ 2
K01 — 10

22207A (A104) CHARACTER AND BIT STRING PROCEDURES FOR ALGOL
D00 — $ 2
K01 — 10

22208A (A016) HP 3030G MAGNETIC TAPE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22209C (A106) DRUM BASED MAGNETIC TAPE DUPLICATOR
D00 — $ 2
K01 — 10

22210A (A006) HP 2322A LOW SPEED A-TO-D SUB-SYSTEM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22211A (A006) HP 5100B FREQUENCY SYNTHESIZER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22212A (A006) HP 2320A LOW SPEED A-TO-D SUB-SYSTEM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22213A (A006) HP 5105A FREQUENCY SYNTHE-SIZER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22214A (A105) CHARACTER CODE TRANSLATOR
D00 — $ 2
K01 — 10

22215A (A006) HP 3480A/B DIGITAL VOLTMETER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22216B (A015) HP 2870A CARTRIDGE DISC DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22217B (A014) HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22218A (A316) FAST FOURIER TRANSFORM
D00 — $ 2
K01 — 10

22219A (A014) HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B
D00 — $ 2
K01 — 10

22220A (A309) LINEAR LEAST SQUARES PROBLEM SOLVER
D00 — $ 2
K01 — 10

22221B (A506) BIOMEDICAL RESPONSE AVERAGING PROGRAM
D00 — $ 5
K01 — 40

22222A (A506) BLOOD ACID-BASE VARIABLES DETERMINATION PROGRAM
D00 — $ 2
K01 — 10

22223C (A017) LOADER BOOTSTRAP
D00 — $ 2
K01 — 10

22224A (A006) HP 6130B DIGITAL VOLTAGE SOURCE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22225B (A015) HP 2870A CARTRIDGE DISC DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22226B (A006) HP 3480A/B DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22227A (A006) HP 6131B DIGITAL VOLTAGE SOURCE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22228A (A006) HP 6131B DIGITAL VOLTAGE SOURCE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22229B (A003) HP 12551A/B RELAY REGISTER INTERFACE DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22230A (A302) EXTENDED-PRECISION ARITHMETIC LIBRARY
D00 — $ 2
K01 — 10
K02 — 20

22233A (A015) DOS-M PRIVILEGED DISC I/O ROUTINES
D00 — $ 2
K01 — 10

22234A (A303) COMPLEX MATH PACKAGE
D00 — $ 2
K01 — 20
K02 — 40

22235A (A019) FORTRAN POWER FAIL LINK
D00 — $ 2
K01 — 10
K02 — 20

22236A (A004) FORTRAN I/O STATUS FUNCTION
D00 — $ 2
K01 — 10
K02 — 20

22237C (A002) TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC
D00 — $ 2
K01 — 10

22238A (A112) FORTRAN RUN-TIME FORMAT SPECIFICATION
D00 — $ 2
K01 — 10
K02 — 20

22239A (A016) HP 7970 MAGNETIC TAPE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22240A (A506) LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM
D00 — $ 2
K01 — 20

22241B (A107) TREESORT3
D00 — $ 2
K01 — 10

22242A (A014) X-Y PLOTTING ROUTINE
D00 — $ 2
K01 — 10

22243A (A002) BCS TELECOMMUNICATIONS DRIVER D.50
D00 — $ 2
B01 — 20
K01 — 60

22244B (A002) 16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM
D00 — $ 2
B01 — 20
K01 — 40
L00 — 15

22245A (A002) USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50
D00 — $ 2
K01 — 10
B01 — 10

22246A (A002) DOS-M REMOTE TAPE READER DRIVER (DVR00, DVR07)
D00 — $ 2
K01 — 20

22247B (A009) FAST DOS/DOS-M PHOTOREADER DRIVER
D00 — $ 2
K01 — .10

22250A (A212) 'EXEC' CALL ADAPTER ROUTINE
D00 — $ 2
K01 — 10

22251A (A207) MAGNETIC TAPE TO LINE PRINTER ROUTINE
K01 — $ 80
D00 — 2
B01 — 20
L00 — 15

22252A (A106) RTE/DOS DUPLICATOR PROGRAM
D00 — $ 2
K01 — 10

22253A (A014) OSCILLOSCOPE PLOTTING SUB-ROUTINE
D00 — $ 2
K01 — 10

22255D (A018) MSU MULTI-TERMINAL BASIC SYSTEM WITH CARD READER CAPABILITY
D00 — $ 5
B01 — 20
K01 — 130
L00 — 15

22256A (A306) FRESNEL INTEGRAL EVALUATION
D00 — $ 2
K01 — 10

22257A (A207) MTS/BCS SYSTEM ABSOLUTE DUMP
D00 — $ 2
K01 — 10

22258A (A011) HP 2767 LINE PRINTER BASIC DRIVER
D00 — $ 2
K01 — 10

22259A (A207) DOS TO MAGNETIC TAPE DUMP
D00 — $ 2
K01 — 10

22260A (A207) MAGNETIC TAPE TO DOS DUMP
D00 — $ 2
K01 — 10

22261A (A018) MINI-BASIC
D00 — $ 2
K01 — 10

22262A (A904) THREE DIMENSIONAL PLOT SUBROUTINE
D00 — $ 2
K01 — 10

22263A (A014) PLOT, RELAY, WAIT
D00 — $ 2
K01 — 10

22264B (A009) TELEX TO ASCII PHOTOREADER DRIVER
D00 — $ 2
K01 — 10

22265A (A405) FLOATING POINT RANDOM NUMBER GENERATOR
D00 — $ 2
K01 — 10

22266A (A720) MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM
D00 — $ 2
K01 — 10

22267A (A212) MTS FORTRAN CHAIN
D00 — $ 2
K01 — 10

22268A (A304) DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES
D00 — $ 2
K01 — 30

22269A (A212) PAPER TAPE TITLER
D00 — $ 2
K01 — 10

22270C (A016) ALGOL OPERATING SYSTEM FOR MTS
D00 — $ 2
K01 — 10

22271B (A003) ZEISS DMC 25 COLORIMETER DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22272A (A102) DISC/DRUM UTILITY
D00 — $ 2
K01 — 10

22273A (A022) CLEAR JOB BINARY AREA IN DOS/DOS-M
D00 — $ 2
K01 — 10

22274A (A105) 4221 BCD TO FLOATING POINT CONVERSION FOR RTE
D00 — $ 2
K01 — 10

22275B (A003) ZEISS DMC 25 COLORIMETER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22276A (A006) RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION
D00 — $ 2
K01 — 10

22277A (A110) DOS-M FILE ACCESS AND STRING LOOKUP
D00 — $ 2
K01 — 10

22278A (A212) TAB FOR PREPARING FORTRAN TAPES
D00 — $ 2
K01 — 10

22279A (A014) BASIC PLOT SUBROUTINES
D00 — $ 2
K01 — 10

22280A (A207) ABSOLUTE CORE DUMP ROUTINE
D00 — $ 2
K01 — 10

22281A (A013) MINIVERTER DRIVER
D00 — $ 2
K01 — 10

22282A (A107) DOS-M LIBRARIAN
D00 — $ 2
K01 — 10

22283A (A107) ASCII DISC FILE SORT PROGRAM
D00 — $ 2
K01 — 10

22284A (A102) DOS-M DUMP/RESTORE PROGRAM
D00 — $ 2
K01 — 10

22285C (A101) CONVERSATIONAL DOS-M DISC FILE EDITOR
D00 — $ 2
K01 — 10

22286A (A101) D H SYMBOLIC EDITOR
D00 — $ 2
K01 — 20

22287A (A212) CHAIN FROM PHOTOREADER IN HP BASIC
D00 — $ 2
K01 — 10

22289A (A212) ALGOL ARRAY TRANSFER FOR SEGMENTATION
D00 — $ 2
K01 — 10

22290A (A207) CORE PUNCH IN BBL FORMAT
D00 — $ 2
K01 — 10

22291B (A014) DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY
D00 — $ 2
K01 — 20

22292B (A018) ABSOLUTE OBJECT DECODER
D00 — $ 2
K01 — 20

22293A (A211) OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM
D00 — $ 2
K01 — 20

22294A (A006) DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION
D00 — $ 2
K01 — 10

22295A (A018) BCS INTERPRETER FOR FLOATING POINT OPERATIONS
D00 — $ 2
K01 — 20

22296A (A207) HP 2870 DISC/MAGNETIC TAPE DUMP IN DOS-M FORMAT
D00 — $ 2
K01 — 10

22297A (A017) OFFLINE RELOCATING LOADER
D00 — $ 2
K01 — 50
L00 — 15

22298A (A903) BATTLESHIP
D00 — $ 2
K01 — 10

22299A (A102) DOS/DOS-M SOURCE STORAGE AND RETRIEVAL
D00 — $ 2
K01 — 10

22300B (A207) QUICK FIXED HEAD SDUMP
D00 — $ 2
K01 — 10

22301A (A015) HP 2870A CARTRIDGE DISC MEMORY DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22302A (A212) RTE/DOS HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM CONVERSION
D00 — $ 2
K01 — 10

22303A (A212) RTE/DOS HP 2320A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM CONVERSION
D00 — $ 2
K01 — 10

22304A (A013) HP 5610A ANALOG TO DIGITAL DRIVER — FORTRAN CALLABLE
D00 — $ 2
K01 — 10

22305A (A006) HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22308A (A405) GAUSSIAN RANDOM NUMBER GENERATOR
D00 — $ 2
K01 — 10

22309A (A212) DOS/RTE HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM CONVERSION
D00 — $ 2
K01 — 10

22310A (A212) FORTRAN/ALGOL ARRAY TRANSFER ROUTINE
D00 — $ 2
K01 — 10

22311A (A002) BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION
D00 — $ 2
K01 — 10

22312A (A015) BCS 2774/2771 DRUM DRIVER
D00 — $ 2
K01 — 10

22313A (A003) HP 12551B RELAY REGISTER INTERFACE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22314A (A211) RTE CROSS-REFERENCE SYMBOL TABLE GENERATOR
D00 — $ 2
K01 — 10

22315A (A014) CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE
D00 — $ 2
K01 — 10

22316A (A014) VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE
K01 — $ 2
D00 — 10

22317A (A006) RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE
D00 — $ 2
K01 — 10

22318A (A014) HP 1331C STORAGE SCOPE DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22319A (A016) DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER
D00 — $ 2
K01 — 10

22320A (A212) DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM
D00 — $ 2
K01 — 10

22321A (A207) HP 2870 DISC DUMP
D00 — $ 2
K01 — 10

22322A (A207) ABSOLUTE OCTAL OR DECIMAL CORE DUMP
D00 — $ 2
K01 — 10

22323A (A205) TEST PATTERN GENERATOR FOR HP 1331C STORAGE SCOPE
D00 — $ 2
K01 — 10

22324A (A904) BCS VARIABLE SIZE PLOT FOR THE CALCOMP 565
D00 — $ 2
K01 — 10

22325A (A505) COPPER-CONSTANTAN THERMO-COUPLE VOLTAGE TO CELSIUS DEGREES CONVERSION
D00 — $ 2
K01 — 10

22326A (A018) DOS-M RELOCATABLE BASIC
B01 — $ 10
K01 — 110
D00 — 2

22327B (A018) SNOBOL COMPILER FOR DOS/DOS-M
K01 — $170
B01 — 50
D00 — 5
L00 — 15

22328A (A002) BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS & ASYNCHRONOUS DEVICES, D.50
K01 — $ 60
D00 — 2
B01 — 10
L00 — 15

22329A (A021) SCIENTIFIC SUBROUTINE PACKAGE
K01 — $ 20
B01 — 20
D00 — 2

22330A (A110) PSEUDO REPORT GENERATOR
D00 — $ 2
K01 — 20

22331A (A013) DOS HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM DRIVER
D00 — $ 2
K01 — 10

22332A (A880) THE EXECUTIVE GAME
D00 — $ 2
K01 — 10

22333A (A218) HP 9300N DISC EXERCISER
D00 — $ 2
K01 — 10

22334A (A302) THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES
D00 — $ 2
K01 — 10

22335A (A302) FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES
D00 — $ 2
K01 — 10

22336A (A006) HP 1900 PROGRAMMABLE PULSE GENERATOR — FORTRAN CALLABLE
D00 — $ 2
K01 — 20

22337A (A006) HP 1900 PROGRAMMABLE PULSE GENERATOR DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 20

22338A (A008) DISC BASIC EXECUTIVE
K01 — $ 60
B01 — 20
D00 — 2
L00 — 15

22339A (A006) DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER
D00 — $ 2
K01 — 10

22340A (A207) 360 FORMAT MAGNETIC TAPE DUMP
D00 — $ 2
K01 — 30

22341A (A108) FTN IV CORE SAVER
D00 — $ 2
K01 — 10

22342A (A017) DOS-M HARDWARE BOOT
D00 — $ 2
K01 — 10

22343A (A107) FIELDSORT
D00 — $ 2
K01 — 10

22344A (A017) ON-LINE SYSTEM LOAD FOR MOVING-HEAD RTE
D00 — $ 2
K01 — 10

22345A (A017) ON-LINE MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS
D00 — $ 2
K01 — 10

22346A (A212) DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER
D00 — $ 2
K01 — 10

22347A (A108) DOS/DOS-M SOURCE FILE VERIFY PROGRAM
D00 — $ 2
K01 — 10

22348A (A904) X-Y PLOTTER FOR 11 INCH PAGE PRINTER
D00 — $ 2
K01 — 10

22349A (A017) DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS
D00 — $ 2
K01 — 10

22350A (A017) DOS-M BOOTSTRAP PROGRAM FROM RTE
D00 — $ 2
K01 — 10

22351A (A212) ASCII STRING SEARCH FROM DISC FILE
D00 — $ 2
K01 — 10

22352A (A212) ASCII STRING SEARCH FROM PHOTOREADER
D00 — $ 2
K01 — 10

22353A (A009) DOS/DOS-M PHOTOREADER DRIVER TO READ ABSOLUTE BINARY TAPES
D00 — $ 2
K01 — 10

22354A (A108) DOS-M STORE ABSOLUTES
D00 — $ 2
K01 — 10

22355A (A108) DOS-M PAPER TAPE/DISC VERIFY
D00 — $ 2
K01 — 10

22356A (A102) PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M
D00 — $ 2
K01 — 30

22357A (A017) MTS BOOT FROM DOS-M
D00 — $ 2
K01 — 10

22358A (A108) EASY MAGNETIC TAPE I/O AND STATUS INFORMATION
D00 — $ 2
K01 — 10

22359A (A108) HANDI-O
D00 — $ 2
K01 — 10

22360A (A106) DOS-M PAPER TAPE REPRODUCER
D00 — $ 2
K01 — 10

22361A (A012) DOS-M BINARY FILE DATA ACQUISITION
D00 — $ 2
K01 — 10

22362A (A021) STACK ROUTINES
D00 — $ 2
K01 — 10

22364A (A110) EFMP RECORD READ/WRITE
D00 — $ 2
K01 — 10

22366A (A212) ALGOL SEGMENT RETURN TO MAIN PROGRAM
D00 — $ 2
K01 — 10

22367A (A002) 8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM
B01 — $ 20
K01 — 50
D00 — 2
L00 — 15

22368A (A106) PAPER TAPE COPY
D00 — $ 2
K01 — 20

22369A (A110) DOS-M FILE WRITER
D00 — $ 2
K01 — 10

22370A (A112) OFFLINE ENCODE/DECODE FOR THE TALLY DATA SYSTEM
D00 — $ 2
K01 — 10

22371A (A101) QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES
D00 — $ 2
K01 — 10

22372A (A002) HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108
K01 — $ 40
D00 — 2
L00 — 15

22373A (A110) ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE
D00 — $ 5
K01 — 50

22374A (A002) A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER
D00 — $ 2
K01 — 20

22375A (A022) REMOTE HP 2100 ACCESS TO A 32K DOS
D00 — $ 2
K01 — 30

22376A (A107) ASCII DISC FILE FIELD SORT
D00 — $ 2
K01 — 10

22378A (A701) RTE LOGBOOK
D00 — $ 2
K01 — 10

22379A (A014) SIO LIST OUTPUT TO A STORAGE SCOPE
D00 — $ 2
K01 — 10

22380A (A012) HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O
D00 — $ 2
K01 — 20

22381A (A108) RELOCATABLE MODULE LISTER
D00 — $ 2
K01 — 10

22382B (A003) SYNCHRONOUS DATA COMMUNICATIONS DRIVERS FOR BCS, D.60 AND D.61
D00 — $ 2
K01 — 30

22383A (A107) ALPHANUMERIC RECORD SORT
D00 — $ 2
K01 — 10

22384A (A517) EFFECTIVE PERCEIVED NOISE LEVEL
K01 — $ 40
D00 — 2
L00 — 15

22385A (A018) SYMBOLIC MACRO ASSEMBLER FOR THE HP 2100
B01 — $ 10
K01 — 70
D00 — 2
L00 — 15

22386A (A112) MULTIRECORD FORMATTED OUTPUT LISTER
D00 — $ 2
K01 — 10

22387A (A002) D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER
K01 — $ 40
D00 — 2
L00 — 15

22389A (A018) DOS-M EAU RELOCATABLE BASIC
K01 — $100
B01 — 20
D00 — 2
L00 — 15

22890A (A014) HP 7004 X-Y RECORDER LIBRARY
D00 — $ 2
K01 — 10

22891A (A014) HP 1331C SIO SCOPE DISPLAY DRIVER
D00 — $ 2
K01 — 10

22892A (A108) RELOCATABLE OBJECT UTILITY LIBRARIAN
D00 — $ 2
K01 — 10

22893A (A101) ON-LINE EDITOR
D00 — $ 2
K01 — 10

22894A (A002) CORE-SAVING TELEPRINTER I/O DRIVER AND CODE CONVERSION ROUTINE
D00 — $ 2
K01 — 10

22895A (A311) REAL AND COMPLEX ROOTS OF A POLYNOMIAL WITH REAL COEFFICIENTS
D00 — $ 2
K01 — 10

22896A (A018) AN HP ASSEMBLER FOR THE IBM 360
D00 — $ 2
K21 — 25
L00 — 15

22898A (A022) RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING
D00 — $ 2
K01 — 10

22899A (A011) HP 2778/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC
D00 — $ 2
K01 — 10

22400A (A108) ZERO
D00 — $ 2
K01 — 10

22401A (A020) RTE SELF SUSPEND ROUTINE
D00 — $ 2
K01 — 10

22403A (A001) HP 2870 EIGHT CHANNEL DISC TIME SHARE BASIC SYSTEM
K01 — $100
B01 — 20
L00 — 15
D00 — 5

22404A (A104) SPACE SAVING ASCII STORAGE ROUTINES
D00 — $ 2
K01 — 10

22407A (A006) HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC CALLABLE
D00 — $ 2
K01 — 10

22408A (A011) BASIC CALLABLE LINE PRINTER DRIVER
D00 — $ 2
K01 — 10

22409A (A011) EDUCATIONAL BASIC LINE PRINTER OUTPUT
D00 — $ 2
K01 — 10

22410A (A006) RTE MULTIPROGRAMMER DRIVER (DVR61)
D00 — $ 2
K01 — 10

22411A (A011) A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER
D00 — $ 2
K01 — 10

22412A (A002) BCS DATA TRANSFER TELEPRINTER DRIVER
D00 — $ 2
K01 — 10

23900A (A014) DOS STORAGE SCOPE DRIVER (DVR46, $EX50)
B01 — $ 20
S01 — 20

24016A (A008) PREPARE TAPE SYSTEM
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55
D00 — 2.50

24031B (A018) EXTENDED ASSEMBLER NON-EAU
B01 — $ 15
B02 — 25
S01 — 100
S02 — 150
L00 — 15
A01 — 130
A02 — 190

24032B (A018) EXTENDED ASSEMBLER EAU
B01 — $ 15
B02 — 25
S01 — 100
S02 — 150
L00 — 15
A01 — 130
A02 — 190

24038B (A018) 4K ASSEMBLER NON-EAU
B01 — $ 10
B02 — 20
S01 — 80
S02 — 120
L00 — 10
A01 — 100
A02 — 150

24039B (A018) 4K ASSEMBLER EAU
B01 — $ 10
B02 — 20
S01 — 80
S02 — 120
L00 — 10
A01 — 100
A02 — 150

24044B (A018) ALGOL COMPILER
B01 — $ 15
B02 — 25
S01 — 215
S02 — 335
L00 — 20
A01 — 250
A02 — 380
D00 — 2.50

24109B (A211) CROSS-REFERENCE SYMBOL TABLE GENERATOR
B01 — $ 10
B02 — 20
S01 — 25
S02 — 35
L00 — 5
A01 — 40
A02 — 60

24123A (A002) 4K SIO TELEPRINTER DRIVER, LP-COMPAT
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50
D00 — 1

24125A (A002) 8K SIO TELEPRINTER DRIVER, LP-COMPAT
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50
D00 — 1

24127A (A002) 16K SIO TELEPRINTER DRIVER, LP-COMPAT
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50
D00 — 1

24129B (A018) RTE/DOS ALGOL COMPILER
B01 — $ 30
B02 — 50
S01 — 190
S02 — 290
L00 — 21
A01 — 241
A02 — 361

24142A (A202) PROCESSOR INTERCONNECT CABLE DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24144A (A218) HP 12591 MEMORY PARITY CHECK TEST
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 10
A01 — 50
A02 — 80

24145A (A021) BCS RELOCATABLE LIBRARY, EAU
B01 — $ 20
B02 — 30
S01 — 170
S02 — 270
L00 — 25
A01 — 215
A02 — 325

24146A (A021) BCS RELOCATABLE LIBRARY, NON-EAU
B01 — $ 20
B02 — 30
S01 — 170
S02 — 270
L00 — 25
A01 — 215
A02 — 325

24147A (A021) 4K BCS RELOCATABLE LIBRARY, NON-EAU
B01 — $ 20
B02 — 30
S01 — 175
S02 — 275
L00 — 25
A01 — 220
A02 — 330

24148A (A021) 4K BCS RELOCATABLE LIBRARY, EAU
B01 — $ 20
B02 — 30
S01 — 170
S02 — 270
L00 — 25
A01 — 215
A02 — 325

24149A (A021) BCS FORTRAN IV LIBRARY
B01 — $ 20
B02 — 30
S01 — 155
S02 — 245
L00 — 30
A01 — 205
A02 — 305

24150C (A021) RTE/DOS RELOCATABLE LIBRARY, NON-EAU
B01 — $ 20
B02 — 30
S01 — 155
S02 — 255
L00 — 25
A01 — 200
A02 — 310

24151C (A021) RTE/DOS RELOCATABLE LIBRARY, EAU
B01 — $ 20
B02 — 30
S01 — 160
S02 — 260
L00 — 25
A01 — 205
A02 — 315

24152A (A021) RTE/DOS FORTRAN IV LIBRARY
B01 — $ 25
B02 — 35
S01 — 160
S02 — 260
L00 — 35
A01 — 220
A02 — 330

24153A (A021) RTE/DOS FORTRAN FORMATTER
B01 — $ 10
B02 — 20
S01 — 45
S02 — 75
L00 — 10
A01 — 65
A02 — 105

24155B (A017) DOS-M RELOCATING LOADER
B01 — $ 15
B02 — 25
S01 — 100
S02 — 150
L00 — 5
A01 — 120
A02 — 180

24156B (A015) DOS-M 2870 DISC DRIVER (DVR31)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24157B (A002) DOS-M SYSTEM TELEPRINTER DRIVER (DRV05)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24158B (A018) DOS-M ASSEMBLER
B01 — $ 75
B02 — 145
S01 — 180
S02 — 280
L00 — 40
A01 — 295
A02 — 465

24159B (A018) DOS-M FORTRAN
B01 — $ 70
B02 — 120
S01 — 345
S02 — 555
L00 — 45
A01 — 460
A02 — 720

24160A (A018) EDUCATIONAL BASIC SYSTEM
B01 — $ 15
B02 — 25
S01 — 225
S02 — 365
L00 — 20
A01 — 260
A02 — 410

24161A (A208) 2116C LOW MEMORY PATTERN TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24162A (A208) 2116C HIGH MEMORY PATTERN TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24163A (A218) GENERAL PURPOSE REGISTER DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24164B (A011) 4K SIO HP 2767 LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

24165B (A011) 8K SIO HP 2767 LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

24166B (A011) 16K SIO HP 2767 LINE PRINTER DRIVER
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

24167B (A011) BCS HP 2767 LINE PRINTER DRVR. (D.16)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24168B (A011) DOS HP 2767 LINE PRINTER DRIVER (DVR12)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24169A (A011) RTE HP 2767 LINE PRINTER DRIVER (DVR12)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24170C (A018) RTE/DOS FORTRAN IV COMPILER
B01 — $ 10
B02 — 100
S01 — 450
S02 — 710
L00 — 50
A01 — 570
A02 — 860

24171B (A011) BCS HP 2778A LINE PRINTER DRVR. (D.12)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24172A (A007) BCS INPUT/OUTPUT CONTROL, BUFFERED
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

24173A (A007) BCS INPUT/OUTPUT CONTROL
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24174A (A214) HP 2891 CARD READER DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 95
S02 — 145
L00 — 15
A01 — 125
A02 — 185

24175A (A218) TELEPRINTER MULTIPLEXOR TEST (12584C)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24177B (A018) RTE/DOS FORTRAN IV COMPILER (10K COMPILER AREA)
B01 — $ 35
B02 — 55
S01 — 305
S02 — 465
L00 — 25
A01 — 365
A02 — 545

24178A (A010) 4K SIO HP 2891A CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24179A (A010) 8K SIO HP 2891A CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24180A (A010) 16K SIO HP 2891A CARD READER DRIVER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24181A (A010) DOS HP 2891A CARD READER DRIVER (D.11)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24182A (A010) DOS HP 2891A CARD READER DRIVER (DVR11)
B01 – $ 10
B02 – 20
S01 – 20
S02 – 30
L00 – 5
A01 – 35
A02 – 55

24184B (A203) FIXED HEAD DISC/DRUM DIAGNOSTIC
B01 – $ 15
B02 – 25
S01 – 105
S02 – 165
L00 – 20
A01 – 140
A02 – 210

24185A (A218) 2115/2116 DMA DIAGNOSTIC
B01 – $ 10
B02 – 20
S01 – 60
S02 – 90
L00 – 10
A01 – 80
A02 – 120

24186B (A218) EXTENDED ARITHMETIC UNIT DIAGNOSTIC
B01 – $ 10
B02 – 20
S01 – 40
S02 – 60
L00 – 10
A01 – 60
A02 – 90

24187C (A217) HP 2600 KEYBOARD-DISPLAY TERMINAL TEST
B01 – $ 10
B02 – 20
S01 – 35
S02 – 55
L00 – 10
A01 – 55
A02 – 85

24188B (A214) HP 2100A OPTICAL MARK READER TEST (KIT 12602B)
B01 – $ 15
B02 – 25
S01 – 75
S02 – 115
L00 – 15
A01 – 105
A02 – 155

24189B (A213) HP 2100A TAPE READER TEST
B01 – $ 10
B02 – 20
S01 – 30
S02 – 50
L00 – 5
A01 – 45
A02 – 75

24190A (A213) HP 2100A TAPE PUNCH TEST
B01 – $ 10
B02 – 20
S01 – 20
S02 – 30
L00 – 5
A01 – 35
A02 – 55

24191A (A218) HP 2100A PLOTTER (12560) TEST
B01 – $ 10
B02 – 20
S01 – 20
S02 – 30
L00 – 5
A01 – 35
A02 – 55

24192A (A214) HP 2100A CARD READER (2891/12882) DIAGNOSTIC
B01 – $ 15
B02 – 25
S01 – 90
S02 – 140
L00 – 15
A01 – 120
A02 – 180

24193A (A208) HP 2100A LOW MEMORY PATTERN TEST
B01 – $ 10
B02 – 20
S01 – 15
S02 – 25
L00 – 5
A01 – 30
A02 – 50

24194A (A208) HP 2100A HIGH MEMORY PATTERN TEST
B01 – $ 10
B02 – 20
S01 – 15
S02 – 25
L00 – 5
A01 – 30
A02 – 50

24195A (A218) HP 2100A DMA DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 55
S02 — 85
L00 — 10
A01 — 75
A02 — 115

24196A (A202) HP 2100A GENERAL PURPOSE REGISTER TEST
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

24197A (A202) HP 2100A PROCESSOR INTERCONNECT CABLE TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24198B (A208) HP 2100A MEMORY PARITY CHECK TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24199A (A2020) HP 2100A CONTROLLER MICROCIRCUIT TEST
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

24200A (A217) HP 2100A KEYBD-DISPLAY TERMINAL (2600) TEST
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 10
A01 — 50
A02 — 80

24201A (A213) HP 2100A TTY TEST
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24202A (A218) HP 2100A TTY MULTIPLEXOR TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24203A (A203) HP 2100A CARTRIDGE DISC MEMORY DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 135
S02 — 215
L00 — 20
A01 — 170
A02 — 260

24204A (A203) HP 2100A DISC FILE (2883) DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 130
S02 — 200
L00 — 20
A01 — 165
A02 — 235

24205A (A215) HP 2100A LINE PRINTER (2767) DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 70
S02 — 110
L00 — 15
A01 — 95
A02 — 145

24206B (A218) 2100A POWER FAIL DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24207A (A203) HP 2100A FIXED HEAD DISC/DRUM DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 110
S02 — 170
L00 — 20
A01 — 145
A02 — 215

24208A (A209) HP 2100A ALTER-SKIP INSTRUCTION TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24209A (A209) HP 2100A MEMORY REF. INSTRUCTION TEST
B01 — $ 15
B02 — 25
S01 — 45
S02 — 75
L00 — 10
A01 — 70
A02 — 110

24210A (A209) HP 2100A SHIFT-ROTATE INSTRUCTION TEST
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

24211A (A208) HP 2100A LOW MEMORY ADDRESS TEST
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

24212A (A208) HP 2100A HIGH MEMORY ADDRESS TEST
B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

24213B (A218) HP 2100A TIME BASE GENERATOR TEST
B01 — $ 10
B02 — 20
S01 — 55
S02 — 85
L00 — 10
A01 — 75
A02 — 115

24214A (A209) HP 2100A EXTENDED ARITHMETIC UNIT TEST
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 10
A01 — 60
A02 — 90

24215A (A209) HP 2100A INTERRUPT TEST
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24216A (A218) HP 2100A RELAY REGISTER TEST
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24217A (A217) HP 2100A AUTO CALL UNIT INTERFACE (12589) TEST
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24218C (A215) 2100A LINE PRINTER (2778) TEST
B01 — $ 10
B02 — 20
S01 — 35
S02 — 55
L00 — 10
A01 — 55
A02 — 85

24219A (A217) HP 2100A SEND (ONLY) INTERFACE (12622) TEST
B01 — $ 15
B02 — 25
S01 — 55
S02 — 85
L00 — 10
A01 — 80
A02 — 120

24220A (A217) HP 2100A RECEIVE (ONLY) INTERFACE (12621) TEST
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 10
A01 — 60
A02 — 90

24221B (A217) HP 2100A SEND/RECEIVE INTERFACE (12587) TEST
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 10
A01 — 60
A02 — 90

24222A (A218) HP 2100A MEMORY PROTECT TEST
B01 — $ 10
B02 — 20
S01 — 35
S02 — 55
L00 — 10
A01 — 55
A02 — 85

24223B (A211) DOS CROSS REFERENCE ROUTINE
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 10
A01 — 60
A02 — 90

24224A (A010) RTE HP 2891A CARD READER DRIVER (DVR11)
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

24225B (A0070 MOVING-HEAD DISC OPERATING SYSTEM
B01 — $ 65
B02 — 115
S01 — 530
S02 — 810
L00 — 40
A01 — 635
A02 — 965

24226A (A015) DOS-M 2883 DISC DRIVER (DVR31)
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24227A (A110) DOS-M EXTENDED FILE MANAGEMENT PACKAGE
B01 — $ 30
B02 — 50
S01 — 135
S02 — 205
L00 — 20
A01 — 185
A02 — 275

24228A (A102) DOS-M/2000C TSB FILE HANDLER
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

24230A (A001) 2000C TIME-SHARED BASIC SYSTEM
B01 — $ 60
B02 — 90
S01 — 925
S02 — 1515
L00 — 85
A01 — 1070
A02 — 1690

24231A (A001) 2000B/C TIME-SHARED BASIC COMMUNICATIONS PROCESSOR
B01 — $ 10
B02 — 20
S01 — 95
S02 — 145
L00 — 10
A01 — 115
A02 — 175

24232A (A001) 2000C TIME-SHARED BASIC LOADER (2883 DISC)
B01 — $ 20
B02 — 30
S01 — 355
S02 — 585
L00 — 35
A01 — 410
A02 — 650

24233A (A001) 2000C TIME-SHARED BASIC LOADER (2870 DISC)
B01 — $ 20
B02 — 30
S01 — 355
S02 — 585
L00 — 35
A01 — 410
A02 — 650

24234A (A008) 2000B TO 2000C CONVERSION (2883 DISC)
B01 — $ 10
B02 — 20
S01 — 70
S02 — 110
L00 — 10
A01 — 90
A02 — 140

24235A (A008) 2000B TO 2000C CONVERSION (2870 DISC)
B01 — $ 10
B02 — 20
S01 — 70
S02 — 110
L00 — 10
A01 — 90
A02 — 140

24236A (A203) HP 2883 DISC FILE DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 135
S02 — 205
L00 — 20
A01 — 170
A02 — 250

24237A (A203) CARTRIDGE DISC MEMORY DIAGNOSTIC
B01 — $ 15
B02 — 25
S01 — 135
S02 — 215
L00 — 20
A01 — 170
A02 — 260

24238B (A001) 2000B TIME-SHARED BASIC LOADER
B01 — $ 15
B02 — 25
S01 — 110
S02 — 180
L00 — 15
A01 — 140
A02 — 220

24239B (A001) 2000B TIME-SHARED BASIC SYSTEM
B01 — $ 35
B02 — 55
S01 — 580
S02 — 910
L00 — 55
A01 — 670
A02 — 1020

24240A (A102) DOS-M/2000C TSB FILE INTERFACE PACKAGE
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

24244A (A800) CAI SUBROUTINES
D00 — $ 3

24245A (A021) HEWLETT-PACKARD COMMERCIAL SUBROUTINES
B01 — $ 30
B02 — 50
S01 — 30
S02 — 50
L00 — 10
A01 — 70
A02 — 110

24246A (A018) EXTENDED ASSEMBLER FLOATING POINT
B01 — $ 15
B02 — 25
S01 — 100
S02 — 150
L00 — 15
A01 — 130
A02 — 190

24247A (A018) 4K ASSEMBLER FLOATING POINT
B01 — $ 10
B02 — 20
S01 — 80
S02 — 120
L00 — 10
A01 — 100
A02 — 150

24248A (A021) RTE/DOS RELOCATABLE LIBRARY — FLOATING POINT
B01 — $ 20
B02 — 30
S01 — 155
S02 — 255
L00 — 25
A01 — 200
A02 — 310

24249A (A021) 4K BCS RELOCATABLE LIBRARY — FLOATING POINT
B01 — $ 20
B02 — 30
S01 — 160
S02 — 260
L00 — 25
A01 — 205
A02 — 315

24250A (A021) BCS RELOCATABLE LIBRARY — FLOATING POINT
B01 — $ 20
B02 — 30
S01 — 160
S02 — 260
L00 — 25
A01 — 205
A02 — 315

24251A (A218) 2100A FLOATING POINT DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

29000A (A0006) RTE 2321A SUBSYSTEM DRIVER (DRV74)
B01 — $ 15
B02 — 25
S01 — 15
L00 — 5
A01 — 35

29001A (A020) COMPUTER SERIAL INTERFACE RTE DRIVER DVR65
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

29002A (A012) COMPUTER SERIAL INTERFACE BCS DRIVER D.65
B01 — $ 10
B02 — 20
S01 — 40
S02 — 60
L00 — 5
A01 — 55
A02 — 85

29003A (A020) COUPLER SERIAL INTERFACE RTE DRIVER DVR66
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

29004A (A012) COUPLER SERIAL INTERFACE BCS DRIVER D.66
B01 — $ 10
B02 — 20
S01 — 15
S02 — 25
L00 — 5
A01 — 30
A02 — 50

29005A (A218) 12665 DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 30
S02 — 50
L00 — 5
A01 — 45
A02 — 75

29006A (A218) 12813 DIAGNOSTIC
B01 — $ 10
B02 — 20
S01 — 20
S02 — 30
L00 — 5
A01 — 35
A02 — 55

29016A (A020) REAL TIME EXECUTIVE OPERATING SYSTEM

This operating system is available to users of the HP 2005A Real Time System. For further information please contact an HP Sales and Service Office.

29017A (A212) FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER D.65, L65

B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

29018A (A212) LISTEN MODE ASSEMBLER INTERFACE SUBROUTINE FOR BCS DVR., D65, DIR65

B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

29019A (A212) LISTEN MODE FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DVR., D.65, DRL65

B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

29020A (A212) FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER D.66, L66

B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

29021A (A212) FORTRAN/ALGOL INTERFACE SUBROUTINE FOR RTE DRIVER DVR65, DLK65

B01 — $ 10
B02 — 20
S01 — 10
S02 — 20
L00 — 5
A01 — 25
A02 — 45

summary

This section summarizes contributed and HP supported programs as of August 18, 1971. An *N denotes a new program, added since the June catalog, while *R signifies a program revision

Classification Code	Product No.	
(A001)	20596F	2000A TIME-SHARED BASIC SYSTEM
*N(A001)	22403A	HP 2870 EIGHT CHANNEL DISC TIME SHARE BASIC SYSTEM
*N(A001)	24230A	2000C TIME-SHARED BASIC SYSTEM
*N(A001)	24231A	2000B/C TIME-SHARED BASIC COMMUNICATIONS PROCESSOR
*N(A001)	24232A	2000C TIME-SHARED BASIC LOADER (2883 DISC)
*N(A001)	24233A	2000C TIME-SHARED BASIC LOADER (2870 DISC)
*N(A001)	24238B	2000B TIME-SHARED BASIC LOADER
*N(A001)	24239B	2000B TIME-SHARED BASIC SYSTEM
*R(A002)	20017C	BCS TTY DRVR, D.00
(A002)	20322A	4K SIO BUFFERED TELEPRINTER DRIVER
(A002)	20323A	8K SIO BUFFERED TELEPRINTER DRIVER
(A002)	20329A	12K SIO BUFFERED TELEPRINTER DRIVER
(A002)	20330B	16K SIO BUFFERED TELEPRINTER DRIVER
*R(A002)	20741D	RTE TELEPRINTER DRIVER (DVR00)
*R(A002)	20985D	DOS TELEPRINTER DRIVER (DVR00)
*R(A002)	22237C	TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC
(A002)	22243A	BCS TELECOMMUNICATIONS DRIVER D.50
*R(A002)	22244B	16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM
*N(A002)	22245A	USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50
(A002)	22246A	DOS-M REMOTE TAPE READER DRIVER (DVR00,DVR07)
*N(A002)	22311A	BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION
*N(A002)	22328A	BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND ASYCHRONOUS DEVICES
*N(A002)	22367A	8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM
*N(A002)	22372A	HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108
*N(A002)	22374A	A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER
*N(A002)	22387A	D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER
*N(A002)	22394A	CORE-SAVING TELEPRINTER I/O DRIVER AND CODE CONVERSION ROUTINE
*N(A002)	22412A	BCS DATA TRANSFER TELEPRINTER DRIVER
(A002)	24123A	4K SIO TELEPRINTER DRIVER, LP-COMPAT
(A002)	24125A	8K SIO TELEPRINTER DRIVER, LP-COMPAT
(A002)	24127A	16K SIO TELEPRINTER DRIVER, LP-COMPAT
*R(A002)	24157B	DOS-M SYSTEM TELEPRINTER DRIVER (DVR05)
*R(A003)	20098C	BCS 40 BIT OUTPUT REGISTER DRIVER D.54
(A003)	20502B	TIME BASE GENERATOR DRIVER (D.43)
(A003)	22002A	TIME-OF-DAY CLOCK
(A003)	22071A	HP 12539A TIME BASE GENERATOR DRIVER - FORTRAN CALLABLE
(A003)	22112A	HP 12539A TIME BASE GENERATOR DRIVER - BASIC CALLABLE
(A003)	22170A	SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM
(A003)	22195A	PROGRAM EXECUTION TIMER
*R(A003)	22229B	HP 12551A/B RELAY REGISTER INTERFACE DRIVER - FORTRAN CALLABLE

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*R(A003) 22271B  ZEISS DMC 25 COLORIMETER DRIVER - FORTRAN CALLABLE
*R(A003) 22275B  ZEISS DMC 25 COLORIMETER DRIVER - BASIC CALLABLE
*N(A003) 22313A  HP 12551B RELAY REGISTER INTERFACE DRIVER - BASIC
                   CALLABLE
*R(A003) 22382B  SYNCHRONOUS DATA COMMUNICATIONS DRIVERS FOR BCS, D.60
                   AND D.61
  (A004) 22236A  FORTRAN I/O STATUS FUNCTION
*R(A006) 14900B  BCS 6936A MULTIPROGRAMMER DRIVER (D.61)
*N(A006) 14909A  6940A DRIVER FOR 24000A BASIC
  (A006) 20008B  BCS 8-4-2-1 DATA SOURCE INTERFACE DRIVER (D.40)
  (A006) 20009B  BCS DIGITAL VOLTMETER PROGRAM DRIVER (D.41)
  (A006) 20010C  BCS 8-4-2-1 SCANNER CONTROL DRIVER (D.42)
  (A006) 20011B  BCS 8-4-2-1/4-2-2-1 DATA SOURCE INTERFACE DRIVER
                   (D.40A)
  (A006) 20012C  BCS 8-4-2-1/4-2-2-1 SCANNER CONTROL DRIVER (D.42A)
  (A006) 20024A  BCS DIGITAL VOLTMETER PROGRAM DRIVER (D.41B)
  (A006) 20025A  BCS 2912 SCANNER CONTROL DRIVER (D.42B)
*R(A006) 20028B  BCS 2323A SUBSYSTEM DRIVER ANALOG SCAN SCN-12 (D.77)
  (A006) 20076A  BCS 2312A DRIVER (D.55)
  (A006) 20078A  BCS 2312A DRIVER/FORTRAN INTERFACE ROUTINE (L2312)
  (A006) 20235A  RTE 2323A SUBSYSTEM DRIVER (DVR77)
  (A006) 20236A  RTE 2320A/2322A SUBSYSTEM DRIVER (DVR76)
  (A006) 20295A  RTE 12604B DATA SOURCE INTERFACE DRIVER (DVR40)
*R(A006) 20430B  2402A PROGRAMMER/DATE INTERFERENCE DIAGNOSTIC
*R(A006) 20501E  BCS SCN-ANALOG 8-4-2-1 SCAN ROUTINE (D.77)
*R(A006) 20517C  BCS SCN-ANALOG 4-2-2-1 SCAN ROUTINE (D.77)
  (A006) 20532A  BCS 2321A SUBSYSTEM (3450/2911A) SCAN ROUTINE SCN 34
                   (D.77)
  (A006) 22001A  HP 2911A/B CROSSBAR SCANNER DRIVER - FORTRAN CALLABLE
  (A006) 22003A  HP 2402A DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE
  (A006) 22004A  COUNTER DATA SOURCE INTERFACE DRIVER - FORTRAN CALLABLE
  (A006) 22005B  HP 2401C DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE
  (A006) 22006A  HP 2401C DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22007A  HP 3440A DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22008A  HP 3460A DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE
  (A006) 22048A  HP 2402A DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
*R(A006) 22053B  HP 3450A DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22055A  HP 3460A/B DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22057A  HP 2801A DATA SOURCE INTERFACE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22059A  HP 2912A REED SCANNER DRIVER - FORTRAN CALLABLE
  (A006) 22061A  HP 2320 LOW SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN
                   CALLABLE
  (A006) 22062A  HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN
                   CALLABLE
  (A006) 22066B  HP 6130B DIGITAL VOLTAGE SOURCE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22068A  HP 3450A DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE
  (A006) 22069A  HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN
                   CALLABLE
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  (A006) 22075A  HP 5100B FREQUENCY SYNTHESIZER DRIVER - FORTRAN
                   CALLABLE
  (A006) 22076A  HP 5105A FREQUENCY SYNTHESIZER DRIVER - FORTRAN
                   CALLABLE
  (A006) 22098A  HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER - BASIC
                   CALLABLE
  (A006) 22101B  HP 2911A/B CROSSBAR SCANNER DRIVER - BASIC CALLABLE
  (A006) 22102B  HP 3460A/B DATA SOURCE INTERFACE DRIVER - BASIC
                   CALLABLE
  (A006) 22103B  HP 2401C DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE
  (A006) 22104B  HP 2402A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE
  (A006) 22106B  COUNTER DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE
  (A006) 22107B  HP 2912A REED SCANNER DRIVER - BASIC CALLABLE
*R(A006) 22108C  HP 3450A DATA SOURCE INTERFACE DRIVER -BASIC CALLABLE
  (A006) 22109B  HP 3440A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE
  (A006) 22200A  WAVETEK BASIC DRIVER
  (A006) 22210A  HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER - BASIC
                   CALLABLE
  (A006) 22211A  HP 5100B FREQUENCY SYNTHESIZER DRIVER - BASIC CALLABLE
  (A006) 22212A  HP 2320A LOW SPEED A-TO-D SUBSYSTEM DRIVER - BASIC
                   CALLABLE
  (A006) 22213A  HP 5105A FREQUENCY SYNTHESIZER DRIVER - BASIC CALLABLE
  (A006) 22215A  HP 3480A/B DIGITAL VOLTMETER DRIVER - BASIC CALLABLE
  (A006) 22224A  HP 6130B DIGITAL VOLTAGE SOURCE DRIVER - BASIC CALLABLE
*R(A006) 22226B  HP 3480A/B DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE
  (A006) 22227A  HP 6131B DIGITAL VOLTAGE SOURCE DRIVER - FORTRAN
                   CALLABLE
  (A006) 22228A  HP 6131B DIGITAL VOLTAGE SOURCE DRIVER - BASIC CALLABLE
*N(A006) 22276A  RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION
*N(A006) 22294A  DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION
*N(A006) 22305A  HP 2402A DIGITAL VOLTMETER DRIVER - BASIC CALLABLE
*N(A006) 22317A  RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE
                   ROUTINE
*N(A006) 22336A  HP 1900 PROGRAMMABLE PULSE GENERATOR - FORTRAN CALLABLE
*N(A006) 22337A  HP 1900 PROGRAMMABLE PULSE GENERATOR DRIVER - BASIC
                   CALLABLE
*N(A006) 22339A  DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM
                   DRIVER
*N(A006) 22407A  HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER - BASIC
                   CALLABLE
*N(A006) 22410A  RTE MULTIPROGRAMMER DRIVER (DVR61)
  (A006) 29000A  RTE 2321A SUBSYSTEM DRIVER (DVR74)
  (A007) 20597B  DISC OPERATING SYSTEM (2770 SERIES DISC/DRUM)
  (A007) 24172A  BCS INPUT/OUTPUT CONTROL, BUFFERED
  (A007) 24173A  BCS INPUT/OUTPUT CONTROL
  (A007) 24225B  MOVING-HEAD DISC OPERATING SYSTEM
*R(A008) 20021C  PREPARE CONTROL SYSTEM
  (A008) 20301B  4K SIO SYSTEM DUMP
  (A008) 20313B  8K SIO SYSTEM DUMP
  (A008) 20335A  16K SIO SYSTEM DUMP
  (A008) 20594A  8K MAGNETIC TAPE SYSTEM
  (A008) 20595A  16K MAGNETIC TAPE SYSTEM
  (A008) 20802C  SYSTEM DUMP
  (A008) 20878B  2000A TO 2000B CONVERSION
  (A008) 22042C  AN HP 2116-FAMILY SIMULATOR FOR THE IBM 360
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*N(A008) 22338A  DISC BASIC EXECUTIVE
  (A008) 24016A  PREPARE TAPE SYSTEM
*N(A008) 24234A  2000B TO 2000C CONVERSION (2883 DISC)
*N(A008) 24235A  2000B TO 2000C CONVERSION (2870 DISC)
*R(A009) 20005B  BCS TAPE READER DRIVER D.01
*R(A009) 20006B  BCS TAPE PUNCH DRIVER D.02
  (A009) 20016A  BCS TAPE PUNCH DRIVER, IBM 8-LEVEL (D.02A)
  (A009) 20303A  4K SIO TAPE READER DRIVER
  (A009) 20304A  4K SIO TAPE PUNCH DRIVER
  (A009) 20306A  8K SIO TAPE READER DRIVER
  (A009) 20307A  8K SIO TAPE PUNCH DRIVER
  (A009) 20316A  8K SIO TAPE PUNCH DRIVER, IBM 8-LEVEL
  (A009) 20317A  4K SIO TAPE PUNCH DRIVER, IBM 8-LEVEL
  (A009) 20319A  16K SIO TAPE READER DRIVER
  (A009) 20320A  16K SIO TAPE PUNCH DRIVER
  (A009) 20327A  12K SIO TAPE READER DRIVER
  (A009) 20328A  12K SIO TAPE PUNCH DRIVER
*R(A009) 20743D  RTE TAPE READER DRIVER (DVR01)
  (A009) 20745B  RTE HIGH SPEED PUNCH DRIVER (DVR02)
*R(A009) 20987C  DOS TAPE READER DRIVER (DVR01)
  (A009) 20989A  DOS HIGH SPEED PUNCH DRIVER (DVR02)
  (A009) 22044B  RUN-TIME DATA INPUT FOR BASIC
  (A009) 22078B  HIGH SPEED PUNCH DRIVER - BASIC CALLABLE
  (A009) 22082B  BASIC PHOTOREADER DATA INPUT
  (A009) 22176A  HP 2754A PUNCH/LIST IN KT MODE
*R(A009) 22247B  FAST DOS/DOS-M PHOTOREADER DRIVER
*R(A009) 22264B  TELEX TO ASCII PHOTOREADER DRIVER
*N(A009) 22353A  DOS/DOS-M PHOTOREADER DRIVER TO READ ABSOLUTE BINARY
                 TAPES
  (A010) 20019C  BCS CARD READER DRIVER (D.11)
  (A010) 20324B  8K SIO CARD READER DRIVER
  (A010) 20332A  16K SIO CARD READER DRIVER
  (A010) 20520C  4K SIO MARK SENSE CARD READER DRIVER
  (A010) 20521C  8K SIO MARK SENSE CARD READER DRIVER
  (A010) 20522C  16K SIO MARK SENSE CARD READER DRIVER
  (A010) 20817A  BCS MARK SENSE DRIVER, KIT 12602A, (D.15)
*R(A010) 20819C  BCS MARK SENSE DRIVER, KIT 12602B, (D.15)
*R(A010) 20821B  RTE MARK SENSE DRIVER, KIT 12602B, (DVR15)
  (A010) 20823C  DOS MARK SENSE DRIVER, KIT 12602B, (DVR15)
*N(A010) 24178A  4K SIO HP 2891A CARD READER DRIVER
*N(A010) 24179A  8K SIO HP 2891A CARD READER DRIVER
*N(A010) 24180A  16K SIO HP 2891A CARD READER DRIVER
*N(A010) 24181A  BCS HP 2891A CARD READER DRIVER (D.11)
*N(A010) 24182A  DOS HP 2891A CARD READER DRIVER (DVR11)
*N(A010) 24224A  RTE HP 2891A CARD READER DRIVER (DVR11)
  (A011) 20527B  4K SIO HP 2778A LINE PRINTER DRIVER
  (A011) 20528A  8K SIO HP 2778A LINE PRINTER DRIVER
  (A011) 20529A  16K SIO HP 2778A LINE PRINTER DRIVER
*R(A011) 20800C  RTE HP 2778A LINE PRINTER DRIVER (DVR12)
  (A011) 20991C  DOS HP 2778A LINE PRINTER DRIVER (DVR12)
  (A011) 22092B  4K, 8K, OR 16K SIO OLIVETTI SV40 DRIVER
  (A011) 22095A  BASIC HP 2778A LINE PRINTER DRIVER
*N(A011) 22258A  HP 2767 LINE PRINTER BASIC DRIVER
*N(A011) 22399A  HP 2778/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC
*N(A011) 22408A  BASIC CALLABLE LINE PRINTER DRIVER
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*N(A011) 22409A  EDUCATIONAL BASIC LINE PRINTER OUTPUT
*N(A011) 22411A  A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER
*R(A011) 24164B  4K SIO HP 2767 LINE PRINTER DRIVER
*R(A011) 24165B  8K SIO HP 2767 LINE PRINTER DRIVER
*R(A011) 24166B  16K SIO HP 2767 LINE PRINTER DRIVER
*R(A011) 24167B  BCS HP 2767 LINE PRINTER DRVR. (D.16)
*R(A011) 24168B  DOS HP 2767 LINE PRINTER DRIVER (DVR12)
  (A011) 24169A  RTE HP 2767 LINE PRINTER DRIVER (DVR12)
*R(A011) 24171B  BCS HP 2778A LINE PRINTER DRVR. (D.12)
*R(A012) 20072C  VERIFICATION: DACE AXEPT
  (A012) 20209C  DACE LIBRARY
  (A012) 22199A  BASIC LANGUAGE DATA ACQUISITION SYSTEM
*N(A012) 22361A  DOS-M BINARY FILE DATA ACQUISITION
*N(A012) 22380A  HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O
*N(A012) 29002A  COMPUTER SERIAL INTERFACE BCS DRIVER D.65
*N(A012) 29004A  COUPLER SERIAL INTERFACE BCS DRIVER D.66
*R(A013) 20073C  BCS 5610A A-TO-D DRIVER, NON-DMA, (D.56)
  (A013) 20074A  FORTRAN /ALGOL INTERFACE ROUTINE (L5610)
*R(A013) 20093C  BCS 5610A A-TO-D DRIVER, DMA, (D.56A)
  (A013) 20094B  MULTI/MINIVERTER SCAN ROUTINE SCNMV (D.76)
*R(A013) 20297D  RTE 2310/2311 SUBSYSTEM DRIVER (DVR56)
  (A013) 20396A  RTE 10-BIT 12564A A-TO-D CARD DRIVER (DVR57)
  (A013) 20398A  RTE 2312A DRIVER (DVR55)
*N(A013) 22281A  MINIVERTER DRIVER
*N(A013) 22304A  HP 5610A ANALOG TO DIGITAL DRIVER - FORTRAN CALLABLE
*N(A013) 22331A  DOS HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM
                   DRIVER
  (A014) 20014A  BCS PLOTTER DRIVER (D.10)
  (A014) 20581A  DOS PLOTTER DRIVER (DVR10)
  (A014) 20808B  RTE PLOTTER DRIVER (DVR10)
  (A014) 22077B  CALCOMP PLOTTER DRIVER - BASIC CALLABLE
  (A014) 22080A  HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER - FORTRAN
                   CALLABLE
*R(A014) 22217B  HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER - BASIC CALLABLE
  (A014) 22219A  HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B
  (A014) 22242A  X-Y PLOTTING ROUTINE
*N(A014) 22253A  OSCILLOSCOPE PLOTTING SUBROUTINE
*N(A014) 22263A  PLOT, RELAY, WAIT
*N(A014) 22279A  BASIC PLOT SUBROUTINES
*R(A014) 22291B  DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY
*N(A014) 22315A  CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE
*N(A014) 22316A  VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE
*N(A014) 22318A  HP 1331C STORAGE SCOPE DRIVER - BASIC CALLABLE
*N(A014) 22379A  SIO LIST OUTPUT TO A STORAGE SCOPE
*N(A014) 22390A  HP 7004 X-Y RECORDER LIBRARY
*N(A014) 22391A  HP 1331C SIO SCOPE DISPLAY DRIVER
*N(A014) 23900A  DOS STORAGE SCOPE DRIVER (DVR46, $EX50)
  (A015) 20079A  8K SIO DISC/DRUM DRIVER
  (A015) 20081A  16K SIO DISC/DRUM DRIVER
  (A015) 20747C  RTE DISC/DRUM DRIVER (DVR30)
  (A015) 20995B  DOS DISC/DRUM DRIVER (DVR30)
  (A015) 22063A  HP 2770A/2771A DISC DRIVER - FORTRAN CALLABLE
  (A015) 22070A  HP 2773A/74A/75A DRUM DRIVER - FORTRAN CALLABLE
  (A015) 22110B  HP 2773A/74A/75A DRUM DRIVER - BASIC CALLABLE
  (A015) 22111C  HP 2770A/2771A DISC DRIVER - BASIC CALLABLE
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*R(A015) 22216B  HP 2870A CARTRIDGE DISC DRIVER - BASIC CALLABLE
*R(A015) 22225B  HP 2870A CARTRIDGE DISC DRIVER - FORTRAN CALLABLE
  (A015) 22233A  DOS-M PRIVILEGED DISC I/O ROUTINES
*N(A015) 22301A  HP 2870A CARTRIDGE DISC MEMORY DRIVER - FORTRAN
                   CALLABLE
*N(A015) 22312A  BCS 2774/2771 DRUM DRIVER
*R(A015) 24156B  DOS-M 2870 DISC DRIVER (DVR31)
  (A015) 24226A  DOS-M 2883 DISC DRIVER (DVR31)
*N(A016) 13021A  8K SIO HP 7970 MT DRIVER
*N(A016) 13022A  16K SIO HP 7970 MT DRIVER
*R(A016) 13023B  BCS MAGNETIC TAPE DRIVER
  (A016) 13024A  DOS HP 7970 MAGNETIC TAPE DRIVER (DVR23)
  (A016) 13025A  RTE HP 7970 MAGNETIC TAPE DRIVER (DVR23)
*R(A016) 13026B  BCS 7 TRACK DRIVER W/O DMA
*R(A016) 13027B  BCS MT DRVR 7T W/DMA
*N(A016) 13029A  8K SIO MT DRVR 7T
*N(A016) 13030A  16K SIO MT DRVR 7T
  (A016) 20007A  BCS INCREMENTAL MAGNETIC TAPE DRIVER (D,20)
  (A016) 20013E  BCS HP 2020 MAGNETIC TAPE DRIVER (D,21)
  (A016) 20022E  BCS HP 3030 MAGNETIC TAPE DRIVER (D,22)
  (A016) 20314D  8K SIO HP 2020 MAGNETIC TAPE DRIVER
  (A016) 20315C  4K SIO HP 2020 MAGNETIC TAPE DRIVER
  (A016) 20321C  16K SIO HP 2020 MAGNETIC TAPE DRIVER
  (A016) 20331C  8K SIO HP MAGNETIC TAPE DRIVER
  (A016) 20334C  16K SIO HP 3030 MAGNETIC TAPE DRIVER
  (A016) 20336B  4K SIO HP 3030 MAGNETIC TAPE DRIVER
  (A016) 20806C  RTE HP 3030 MAGNETIC TAPE DRIVER (DVR22)
  (A016) 20997B  DOS HP 3030 MAGNETIC TAPE DRIVER (DVR22)
  (A016) 22100A  FILE THREE INPUT FOR MTS ALGOL
  (A016) 22181A  RTE HP 2020 MAGNETIC TAPE DRIVER
  (A016) 22208A  HP 3030G MAGNETIC TAPE DRIVER - FORTRAN CALLABLE
*N(A016) 22239A  HP 7970 MAGNETIC TAPE DRIVER - BASIC CALLABLE
*R(A016) 22270C  ALGOL OPERATING SYSTEM FOR MTS
*N(A016) 22319A  DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER
*R(A017) 20001C  4K BCS RELOCATING LOADER
*R(A017) 20018G  BCS RELOCATING LOADER
  (A017) 20792C  RTE RELOCATING LOADER
*R(A017) 20925C  DOS RELOCATING LOADER
  (A017) 22009B  BOOTSTRAP LOADER GENERATOR
*R(A017) 22223C  LOADER BOOTSTRAP
*N(A017) 22297A  OFFLINE RELOCATING LOADER
*N(A017) 22342A  DOS-M HARDWARE BOOT
*N(A017) 22344A  ON-LINE SYSTEM LOAD FOR MOVING-HEAD RTE
*N(A017) 22345A  ON-LINE MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS
*N(A017) 22349A  DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS
*N(A017) 22350A  DOS-M BOOTSTRAP PROGRAM FROM RTE
*N(A017) 22357A  MTS BOOT FROM DOS-M
  (A017) 24155B  DOS-M RELOCATING LOADER
  (A018) 20392A  BASIC SYSTEM
  (A018) 20548A  FORTRAN COMPILER
  (A018) 20549A  4K FORTRAN COMPILER
*R(A018) 20598C  DOS ASSEMBLER
*R(A018) 20599C  DOS FORTRAN
*R(A018) 20874D  RTE ASSEMBLER
*R(A018) 20875E  RTE FORTRAN
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  (A018) 22013B  INVERSE ASSEMBLER
  (A018) 22065A  FORTRAN TRANSLATOR, IBM 1800 TO HP FORTRAN II
*R(A018) 22201D  PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM
*R(A018) 22255D  MSU MULTI-TERMINAL BASIC SYSTEM WITH CARD READER
                      CAPABILITY
*N(A018) 22261A  MINI-BASIC
*R(A018) 22292B  ABSOLUTE OBJECT DECODER
*N(A018) 22295A  BCS INTERPRETER FOR FLOATING POINT OPERATIONS
*N(A018) 22326A  DOS-M RELOCATABLE BASIC
*R(A018) 22327B  SNOBOL COMPILER FOR DOS/DOS-M
*N(A018) 22385A  SYMBOLIC MACRO ASSEMBLER FOR THE HP 2100
*N(A018) 22389A  DOS-M EAU RELOCATABLE BASIC
*N(A018) 22396A  AN HP ASSEMBLER FOR THE IBM 360
*R(A018) 24031B  EXTENDED ASSEMBLER NON-EAU
*R(A018) 24032B  EXTENDED ASSEMBLER EAU
*R(A018) 24038B  4K ASSEMBLER NON-EAU
*R(A018) 24039B  4K ASSEMBLER EAU
*R(A018) 24044B  ALGOL COMPILER
*R(A018) 24129B  RTE/DOS ALGOL COMPILER
*R(A018) 24158B  DOS-M ASSEMBLER
*R(A018) 24159B  DOS-M FORTRAN
  (A018) 24160A  EDUCATIONAL BASIC SYSTEM
*R(A018) 24170C  RTE/DOS FORTRAN IV COMPILER
*R(A018) 24177B  RTE/DOS FORTRAN IV COMPILER (10K COMPILER AREA)
*N(A018) 24246A  EXTENDED ASSEMBLER FLOATING POINT
*N(A018) 24247A  4K ASSEMBLER FLOATING POINT
  (A019) 22235A  FORTRAN POWER FAIL LINK
  (A020) 20688D  REAL-TIME EXECUTIVE OPERATING SYSTEM
*N(A020) 22401A  RTE SELF SUSPEND ROUTINE
*N(A020) 29001A  COMPUTER SERIAL INTERFACE RTE DRIVER DVR65
*N(A020) 29003A  COUPLER SERIAL INTERFACE RTE DRIVER DVR66
*N(A020) 29016A  RTE SYSTEM
*R(A021) 20201C  BCS PLOTTER LIBRARY
*R(A021) 20810B  RTE/DOS PLOTTER LIBRARY
*N(A021) 22329A  SCIENTIFIC SUBROUTINE PACKAGE
*N(A021) 22362A  STACK ROUTINES
  (A021) 24145A  BCS RELOCATABLE LIBRARY, EAU
  (A021) 24146A  BCS RELOCATABLE LIBRARY, NON-EAU
  (A021) 24147A  4K BCS RELOCATABLE LIBRARY, NON-EAU
  (A021) 24148A  4K BCS RELOCATABLE LIBRARY, EAU
  (A021) 24149A  BCS FORTRAN IV LIBRARY
*R(A021) 24150C  RTE/DOS RELOCATABLE LIBRARY, NON-EAU
*R(A021) 24151C  RTE/DOS RELOCATABLE LIBRARY, EAU
  (A021) 24152A  RTE/DOS FORTRAN IV LIBRARY
  (A021) 24153A  RTE/DOS FORTRAN FORMATTER
*N(A021) 24245A  HEWLETT-PACKARD COMMERCIAL SUBROUTINES
*N(A021) 24248A  RTE/DOS RELOCATABLE LIBRARY - FLOATING POINT
*N(A021) 24249A  4K BCS RELOCATABLE LIBRARY - FLOATING POINT
*N(A021) 24250A  BCS RELOCATABLE LIBRARY - FLOATING POINT
*N(A022) 22273A  CLEAR JOB BINARY AREA IN DOS/DOS-M
*N(A022) 22375A  REMOTE HP 2100 ACCESS TO A 32K DOS
*N(A022) 22398A  RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING
  (A101) 20100B  SYMBOLIC EDITOR
  (A101) 20805C  RTE EDITOR
  (A101) 22114A  REPRODUCE/EDIT PAPER TAPE
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  (A101) 22171A  FORTRAN UNIT REFERENCE NUMBER EDITOR
*R(A101) 22285C  CONVERSATIONAL DOS-M DISC FILE EDITOR
*N(A101) 22286A  D H SYMBOLIC EDITOR
*N(A101) 22371A  QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES
*N(A101) 22393A  ON-LINE EDITOR
  (A102) 22198C  MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM
*N(A102) 22272A  DISC/DRUM UTILITY
*N(A102) 22284A  DOS-M DUMP/RESTORE PROGRAM
*N(A102) 22299A  DOS/DOS-M SOURCE STORAGE AND RETRIEVAL
*N(A102) 22356A  PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M
*N(A102) 24228A  DOS-M/2000C TSB FILE HANDLER
*N(A102) 24240A  DOS-M/2000C TSB FILE INTERFACE PACKAGE
  (A104) 22081A  BIT OPERATIONS (SET, CLEAR, TEST) - FORTRAN CALLABLE
  (A104) 22204A  DATA BLOCK MOVEMENT
  (A104) 22207A  CHARACTER AND BIT STRING PROCEDURES FOR ALGOL
*N(A104) 22404A  SPACE SAVING ASCII STORAGE ROUTINES
  (A105) 20096A  CONVERSION ROUTINE MCONV
  (A105) 20210A  CONVERSION ROUTINE ICONV
  (A105) 20288A  RTE CONVERSION ROUTINE CONV
  (A105) 20533A  CONVERSION ROUTINE CON34
  (A105) 22086A  EBCDIC TO ASCII TRANSLATOR
  (A105) 22093A  ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE
  (A105) 22214A  CHARACTER CODE TRANSLATOR
*N(A105) 22274A  4221 BCD TO FLOATING POINT CONVERSION FOR RTE
  (A106) 20312A  PUNCH/VERIFY ROUTINE
*R(A106) 22041E  PUNCHED TAPE DUPLICATOR
  (A106) 22113B  MTS PUNCHED TAPE DUPLICATOR
*N(A106) 22180C  FAST PUNCH VERIFY
  (A106) 22197A  SINGLE DRIVE MAGNETIC TAPE COPY PROGRAM
  (A106) 22209C  DRUM BASED MAGNETIC TAPE DUPLICATOR
  (A106) 22252A  RTE/DOS DUPLICATOR PROGRAM
*N(A106) 22360A  DOS-M PAPER TAPE REPRODUCER
*N(A106) 22368A  PAPER TAPE COPY
  (A107) 20237A  LIBRARIAN
  (A107) 22079B  NUMERIC STRING SORT FOR ASCII RECORDS
  (A107) 22116A  ORDERING A FLOATING POINT ARRAY
  (A107) 22167A  ORDERING A FIXED POINT ARRAY
  (A107) 22168A  RANKING A FLOATING POINT ARRAY
  (A107) 22169A  ORDERING A FLOATING POINT ARRAY
*R(A107) 22241B  TREESORT3
*N(A107) 22282A  DOS-M LIBRARIAN
*N(A107) 22283A  ASCII DISC FILE SORT PROGRAM
*N(A107) 22343A  FIELDSORT
*N(A107) 22376A  ASCII DISC FILE FIELD SORT
*N(A107) 22383A  ALPHANUMERIC RECORD SORT
  (A108) 22090A  KEYBOARD TAPE GENERATOR
  (A108) 22165A  CARD TO MAGNETIC TAPE UTILITY
  (A108) 22166A  MAGNETIC TAPE TO PRINT UTILITY PROGRAM
*N(A108) 22341A  FTN IV CORE SAVER
*N(A108) 22347A  DOS/DOS-M SOURCE FILE VERIFY PROGRAM
*N(A108) 22354A  DOS-M STORE ABSOLUTES
*N(A108) 22355A  DOS-M PAPER TAPE/DISC VERIFY
*N(A108) 22358A  EASY MAGNETIC TAPE I/O AND STATUS INFORMATION
*N(A108) 22359A  HANDI-O
*N(A108) 22381A  RELOCATABLE MODULE LISTER
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*N(A108) 22392A  RELOCATABLE OBJECT UTILITY LIBRARIAN
*N(A108) 22400A  ZERO
*N(A110) 22277A  DOS-M FILE ACCESS AND STRING LOOKUP
*N(A110) 22330A  PSEUDO REPORT GENERATOR
*N(A110) 22364A  EFMP RECORD READ/WRITE
*N(A110) 22369A  DOS-M FILE WRITER
*N(A110) 22373A  ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE
*N(A110) 24227A  DOS-M EXTENDED FILE MANAGEMENT PACKAGE
  (A112) 22172C  IOC - FORTRAN CALLABLE
  (A112) 22238A  FORTRAN RUN-TIME FORMAT SPECIFICATION
*N(A112) 22370A  OFFLINE ENCODE/DECODE FOR THE TALLY DATA SYSTEM
*N(A112) 22386A  MULTIRECORD FORMATTED OUTPUT LISTER
  (A201) 22193A  INTERPRETIVE BINARY SIMULATOR
*N(A202) 14901A  6936A 21XX VERIFICATION AND TEST
  (A202) 20077B  HP 2312A SUBSYSTEM TEST
*R(A202) 20337D  12608 DSI DIAGNOSTIC
  (A202) 20341B  TEST:  2912 SCANNER/DVM
*R(A202) 20348C  DIAGNOSTIC 40-BIT OUTPUT REGISTER 12556B
*R(A202) 20349D  VERIFY 2911 SCANNER/DVM TEST
*R(A202) 20429C  DIAGNOSTIC 2912A PROGRAMMER CARD
  (A202) 20436A  DIAGNOSTIC: DVS PROGRAM CARD 12661A
*R(A202) 20530D  VER34 2321 VERIFICATION
  (A202) 24142A  PROCESSOR INTERCONNECT CABLE DIAGNOSTIC
*N(A202) 24196A  HP 2100A GENERAL PURPOSE REGISTER TEST
*N(A202) 24197A  HP 2100A PROCESSOR INTERCONNECT CABLE TEST
*N(A202) 24199A  HP 2100A CONTROLLER MICROCIRCUIT TEST
*N(A203) 13041B  HP 7900/13210 DIAGNOSTIC
*R(A203) 24184B  FIXED HEAD DISC/DRUM DIAGNOSTIC
*N(A203) 24203A  HP 2100A CARTRIDGE DISC MEMORY DIAGNOSTIC
*N(A203) 24204A  HP 2100A DISC FILE (2883) DIAGNOSTIC
*N(A203) 24207A  HP 2100A FIXED HEAD DISC/DRUM DIAGNOSTIC
*N(A203) 24236A  HP 2883 DISC FILE DIAGNOSTIC
*N(A203) 24237A  CARTRIDGE DISC MEMORY DIAGNOSTIC
*R(A204) 13020C  7970/13181A DIAGNOSTIC
*R(A204) 13028D  7970/13182 7 TRACK DIAGNOSTIC
*N(A204) 13031A  HP 7970E/13183 DIAGNOSTIC
  (A204) 20411B  TEST: KENNEDY INCREMENTAL MAGNETIC TAPE UNIT
  (A204) 20433E  HP 3030 MAGNETIC TAPE UNIT DIAGNOSTIC
  (A204) 20516B  HP 2020 MAGNETIC TAPE UNIT DIAGNOSTIC
  (A205) 20390A  HP 12560A PLOTTER DIAGNOSTIC
*N(A205) 22323A  TEST PATTERN GENERATOR FOR HP 1331C STORAGE SCOPE
  (A207) 22174A  BCS DUMP IN BBL FORMAT
*N(A207) 22251A  MAGNETIC TAPE TO LINE PRINTER ROUTINE
*N(A207) 22257A  MTS/BCS SYSTEM ABSOLUTE DUMP
*N(A207) 22259A  DOS TO MAGNETIC TAPE DUMP
*N(A207) 22260A  MAGNETIC TAPE TO DOS DUMP
*N(A207) 22280A  ABSOLUTE CORE DUMP ROUTINE
*N(A207) 22290A  CORE PUNCH IN BBL FORMAT
*N(A207) 22296A  HP 2870 DISC/MAGNETIC TAPE DUMP IN DOS-M FORMAT
*R(A207) 22300B  QUICK FIXED HEAD SDUMP
*N(A207) 22321A  HP 2870 DISC DUMP
*N(A207) 22322A  ABSOLUTE OCTAL OR DECIMAL CORE DUMP
*N(A207) 22340A  360 FORMAT MAGNETIC TAPE DUMP
  (A208) 20403A  LOW MEMORY ADDRESS TEST
  (A208) 20404A  HIGH MEMORY ADDRESS TEST
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  (A208) 20405A  2116A LOW MEMORY CHECKERBOARD TEST
  (A208) 20406A  2116A HIGH MEMORY CHECKERBOARD TEST
  (A208) 20426A  2116B HIGH MEMORY CHECKERBOARD TEST
  (A208) 20427A  2116B LOW MEMORY CHECKERBOARD TEST
  (A208) 20512A  2115A/14A HIGH MEMORY CHECKERBOARD TEST
  (A208) 20513A  2115A/14A LOW MEMORY CHECKERBOARD TEST
  (A208) 24161A  2116C LOW MEMORY PATTERN TEST
  (A208) 24162A  2116C HIGH MEMORY PATTERN TEST
*N(A208) 24193A  HP 2100A LOW MEMORY PATTERN TEST
*N(A208) 24194A  HP 2100A HIGH MEMORY PATTERN TEST
*R(A208) 24198B  HP 2100A MEMORY PARITY CHECK TEST
*N(A208) 24211A  HP 2100A LOW MEMORY ADDRESS TEST
*N(A208) 24212A  HP 2100A HIGH MEMORY ADDRESS TEST
  (A209) 20400A  ALTER-SKIP INSTRUCTION TEST
  (A209) 20401B  MEMORY REFERENCE INSTRUCTION TEST
  (A209) 20402D  SHIFT-ROTATE INSTRUCTION TEST
  (A209) 20415A  INTERRUPT DIAGNOSTIC
*N(A209) 24208A  HP 2100A ALTER-SKIP INSTRUCTION TEST
*N(A209) 24209A  HP 2100A MEMORY REF. INSTRUCTION TEST
*N(A209) 24210A  HP 2100A SHIFT-ROTATE INSTRUCTION TEST
*N(A209) 24214A  HP 2100A EXTENDED ARITHMETIC UNIT TEST
*N(A209) 24215A  HP 2100A INTERRUPT TEST
  (A211) 20002B  BCS DEBUG ROUTINE
  (A211) 22088A  OCTAL UTILITY SYSTEM (HOCUS)
  (A211) 22190A  ABSOLUTE PROGRAM CONTROL SYSTEM
*N(A211) 22293A  OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM
*N(A211) 22314A  RTE CROSS-REFERENCE SYMBOL TABLE GENERATOR
*R(A211) 24109B  CROSS-REFERENCE SYMBOL TABLE GENERATOR
*R(A211) 24223B  DOS CROSS REFERENCE ROUTINE
  (A212) 22014A  BINARY TAPE EDITOR
  (A212) 22015B  BASIC LINE RESEQUENCER
*R(A212) 22016C  SYMBOLIC ALPHANUMERIC GENERATOR
  (A212) 22064A  AUTOMATIC TABBING PROGRAM
  (A212) 22089A  TELEPRINTER OCTAL INPUT PROGRAM
  (A212) 22096A  SCOPE SYMBOLIC LISTER
  (A212) 22105A  COMMENT INSERTER FOR ASSEMBLER PROGRAMS
  (A212) 22173A  I/O INSTRUCTION CONFIGURATOR
  (A212) 22191A  NAM-ENT-EXT EDITOR
  (A212) 22205A  TABULATION AND FORM-FEED CALLS FOR HP 2754 TELEPRINTER
  (A212) 22250A  'EXEC' CALL ADAPTER ROUTINE
*N(A212) 22267A  MTS FORTRAN CHAIN
*N(A212) 22269A  PAPER TAPE TITLER
*N(A212) 22278A  TAB FOR PREPARING FORTRAN TAPES
*N(A212) 22287A  CHAIN FROM PHOTOREADER IN HP BASIC
*N(A212) 22289A  ALGOL ARRAY TRANSFER FOR SEGMENTATION
*N(A212) 22302A  RTE/DOS HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM
                      CONVERSION
*N(A212) 22303A  RTE/DOS HP 2320A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM
                      CONVERSION
*N(A212) 22309A  DOS/RTE HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM
                      CONVERSION
*N(A212) 22310A  FORTRAN/ALGOL ARRAY TRANSFER ROUTINE
*N(A212) 22320A  DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM
*N(A212) 22346A  DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER
*N(A212) 22351A  ASCII STRING SEARCH FROM DISC FILE
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*N(A212)  22352A  ASCII STRING SEARCH FROM PHOTOREADER
*N(A212)  22366A  ALGOL SEGMENT RETURN TO MAIN PROGRAM
*N(A212)  29017A  FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER
                       D,65, L65
*N(A212)  29018A  LISTEN MODE ASSEMBLER INTERFACE SUBROUTINE FOR BCS
                       DVR,, D,65,DIR65
*N(A212)  29019A  LISTEN MODE FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS
                       DVR,,D,65,DRL65
*N(A212)  29020A  FORTRAN/ALGOL INTERFACE SUBROUTINE FOR BCS DRIVER
                       D,66, L66
*N(A212)  29021A  FORTRAN/ALGOL INTERFACE SUBROUTINE FOR RTE DRIVER
                       DVR65,DLK65
  (A213)  20408C  HP 2737 PUNCH TAPE READER TEST
  (A213)  20409C  HP 2753 TAPE PUNCH TEST
*N(A213)  24189B  HP 2100A TAPE READER TEST
*N(A213)  24190A  HP 2100A TAPE PUNCH TEST
*N(A213)  24201A  HP 2100A TTY TEST
  (A214)  20347B  HP 2761A-007 OPTICAL MARK READER DIAGNOSTIC, 12602A KIT
*R(A214)  20899B  HP 2761A-007 OPTICAL MARK READER DIAGNOSTIC, 12602B KIT
*N(A214)  24174A  HP 2891 CARD READER DIAGNOSTIC
*N(A214)  24188B  HP 2100A OPTICAL MARK READER TEST (KIT 12602B)
*N(A214)  24192A  HP 2100A CARD READER (2891/12882) DIAGNOSTIC
*R(A215)  20895C  HP 2778 LINE PRINTER DIAGNOSTIC
  (A215)  20999A  HP 2767 LINE PRINTER DIAGNOSTIC
*N(A215)  24205A  HP 2100A LINE PRINTER (2767) DIAGNOSTIC
*R(A215)  24218C  2100A LINE PRINTER (2778) TEST
*R(A216)  20075D  VERIFY 5610A A-TO-D TEST
  (A216)  20338D  2310C VERIFICATION TEST
  (A216)  20339B  TEST:  2310A/B SUBSYSTEM
  (A216)  20344A  DIAGNOSTIC: 10-BIT A-TO-D CARD 12564A
*R(A216)  20583C  CALIBRATION 2311 - TTY
  (A217)  20290A  HP 12589A AUTOMATIC CALLING UNIT INTERFACE CARD
                       DIAGNOSTIC
  (A217)  20343A  TELEPRINTER OFF-LINE TEST
  (A217)  20393A  HP 12622 SEND (ONLY) INTERFACE TEST
  (A217)  20407A  2116 SERIAL TELEPRINTER TEST
  (A217)  20417C  2116 TELEPRINTER TEST
  (A217)  20420B  2115/2114 TELEPRINTER TEST
  (A217)  20535A  HP 12587 SEND/RECEIVE INTERFACE TEST
  (A217)  20538A  HP 12621 RECEIVE (ONLY) INTERFACE TEST
*R(A217)  24187C  HP 2600 KEYBOARD-DISPLAY TERMINAL TEST
*N(A217)  24200A  HP 2100A KEYBD-DISPLAY TERMINAL (2600) TEST
*N(A217)  24217A  HP 2100A AUTO CALL UNIT INTERFACE (12589) TEST
*N(A217)  24219A  HP 2100A SEND (ONLY) INTERFACE (12622) TEST
*N(A217)  24220A  HP 2100A RECEIVE (ONLY) INTERFACE (12621) TEST
*R(A217)  24221B  HP 2100A SEND/RECEIVE INTERFACE (12587) TEST
  (A218)  20345A  HP 12598 MEMORY PARITY CHECK DIAGNOSTIC
  (A218)  20412B  2116 HP 12539 TIME BASE GENERATOR TEST
  (A218)  20418D  MEMORY PROTECT DIAGNOSTIC
  (A218)  20421A  2115/2114 HP 12539 TIME BASE GENERATOR TEST
  (A218)  20423A  HP 12551 RELAY REGISTER DIAGNOSTIC
  (A218)  20428B  HP 12588 POWER FAIL WITH AUTO-RESTART TEST
  (A218)  20431B  DIAGNOSTIC:  40-BIT OUTPUT REGISTER (12556A)
  (A218)  20434B  2116 POWER FAIL INTERRUPT TEST
  (A218)  20435A  DMI DIAGNOSTIC
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  (A218) 20439A  HP 12584 TELEPRINTER MULTIPLEXOR INTERFACE TEST
  (A218) 20524A  2114B DMA GENERAL DIAGNOSTIC
  (A218) 20525A  2114B DMA RATE AND TRANSFER DIAGNOSTIC
  (A218) 20543A  CONTROLLER MICROCIRCUIT DIAGNOSTIC
  (A218) 20546A  2114B HP 12616 HIGH SPEED I/O CHANNEL TEST
*N(A218) 22333A  HP 9300N DISC EXERCISER
  (A218) 24144A  HP 12591 MEMORY PARITY CHECK TEST
  (A218) 24163A  GENERAL PURPOSE REGISTER DIAGNOSTIC
*N(A218) 24175A  TELEPRINTER MULTIPLEXOR TEST (12584C)
*N(A218) 24185A  2115/2116 DMA DIAGNOSTIC
  (A218) 24186B  EXTENDED ARITHMETIC UNIT DIAGNOSTIC
*N(A218) 24191A  HP 2100A PLOTTER (12560) TEST
*N(A218) 24195A  HP 2100A DMA DIAGNOSTIC
*N(A218) 24202A  HP 2100A TTY MULTIPLEXOR TEST
*R(A218) 24206B  2100A POWER FAIL DIAGNOSTIC
*N(A218) 24213B  HP 2100A TIME BASE GENERATOR TEST
*N(A218) 24216A  HP 2100A RELAY REGISTER TEST
*N(A218) 24222A  HP 2100A MEMORY PROTECT TEST
*N(A218) 24251A  2100A FLOATING POINT DIAGNOSTIC
*N(A218) 29005A  12665 DIAGNOSTIC
*N(A218) 29006A  12813 DIAGNOSTIC
  (A301) 22021A  LOCATE MAXIMUM-MINIMUM INTEGER
*R(A301) 22084C  INTEGRATED MATH CALCULATOR PROGRAM
*R(A302) 22085B  EXTENDED PRECISION CALCULATOR
*R(A302) 22097B  DOUBLE PRECISION INTEGER LIBRARY
  (A302) 22230A  EXTENDED-PRECISION ARITHMETIC LIBRARY
*N(A302) 22334A  THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES
*N(A302) 22335A  FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES
  (A303) 22234A  COMPLEX MATH PACKAGE
*N(A304) 22268A  DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES
  (A306) 22017A  GAMMA FUNCTION ROUTINE
  (A306) 22018A  K BESSEL FUNCTION ROUTINE
  (A306) 22019A  I BESSEL FUNCTION ROUTINE
  (A306) 22020A  Y BESSEL FUNCTION ROUTINE
  (A306) 22117A  TRANSFORMATIONS
*N(A306) 22256A  FRESNEL INTEGRAL EVALUATION
  (A309) 22022A  SOLUTION OF LINEAR LEAST SQUARES PROBLEMS
  (A309) 22220A  LINEAR LEAST SQUARES PROBLEM SOLVER
  (A310) 22023A  TRAPEZOIDAL INTEGRATION ROUTINE
  (A310) 22024A  TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL
                 ARGUMENT
  (A310) 22025A  SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL
                 INTERVAL ARGUMENT
  (A310) 22026A  HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE
*R(A310) 22027B  HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL
                 INTERVAL ARGUMENT
  (A310) 22028A  HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE
  (A310) 22029A  HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE, EQUAL
                 INTERVAL ARGUMENT
  (A310) 22144A  INTEGRATION ROUTINE
  (A311) 22030A  COMPLEX ROOTS OF A REAL POLYNOMIAL
*N(A311) 22395A  REAL AND COMPLEX ROOTS OF A POLYNOMIAL WITH REAL
                 COEFFICIENTS
  (A312) 22031A  ADD ROWS OF MATRICES
  (A312) 22032A  RANK AND BASIS ROUTINE
  (A312) 22118B  MATRIX INVERSION SUBROUTINES
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  (A312) 22119A  MATRIX ARITHMETIC SUBROUTINE
  (A312) 22120A  MATRIX ARITHMETIC PROGRAM
  (A313) 22192A  EIGENVALUES OF A SYMMETRIC REAL MATRIX
  (A314) 22033A  SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS
  (A314) 22034A  SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX
  (A314) 22035A  SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC
                 MATRIX
  (A314) 22122A  SIMULTANEOUS EQUATION SOLVER PROGRAM
  (A314) 22123A  SIMULTANEOUS EQUATION SOLVER ROUTINE
  (A316) 22036A  REAL FOURIER TRANSFORM
  (A316) 22037B  COMPLEX FOURIER TRANSFORM
*R(A316) 22189B  GENERAL FAST FOURIER TRANSFORM
  (A316) 22218A  FAST FOURIER TRANSFORM
  (A318) 22038A  SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS
*R(A401) 22145B  CONFIDENCE INTERVAL FOR MEAN AND VARIANCE OF A NORMAL
                 DISTRIBUTION
*R(A401) 22146C  SAMPLE SIZE DETERMINATION ON THE SAMPLE VARIANCE
  (A401) 22156A  PAIRED T-TEST
*R(A401) 22157B  BARTLETT'S HOMOGENEITY OF VARIANCE TEST
*R(A401) 22159B  CHI SQUARE GOODNESS-OF-FIT TEST
  (A401) 22160A  TESTS OF HYPOTHESIS FOR VARIANCES
*R(A401) 22161B  TEST OF HYPOTHESIS FOR MEANS
  (A401) 22183A  SAMPLE SIZE DETERMINATION TO TEST H0
  (A402) 22124A  AUTOCORRELATION AND SPECTRAL DENSITY
  (A402) 22125A  MOVING AVERAGES
  (A403) 22127A  DISCRIMINANT ANALYSIS PROGRAM
  (A404) 22126A  LEAST SQUARES REGRESSION PROGRAM
  (A404) 22129A  LINEAR REGRESSION INTERVAL ESTIMATES
  (A404) 22130A  POLYNOMIAL REGRESSION PROGRAM
  (A404) 22131A  POLYNOMIAL REGRESSION CONFIDENCE INTERVALS
  (A404) 22132A  STEPWISE REGRESSION PROGRAM
  (A404) 22133A  BIOASSAY PROGRAM
  (A404) 22134A  ORTHOGONAL REGRESSION PROGRAM
  (A404) 22135A  LINEAR REGRESSION WITH REPLICATION
  (A404) 22136A  NONLINEAR REGRESSION PROGRAM
  (A404) 22184A  POOLING OF GROUPS IN REGRESSION
  (A404) 22185A  MULTIPLE REGRESSION PROGRAM
  (A404) 22187A  NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION
  (A404) 22188A  NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION
  (A405) 22194A  PSEUDO-RANDOM NUMBER GENERATOR
*N(A405) 22265A  FLOATING POINT RANDOM NUMBER GENERATOR
*N(A405) 22308A  GAUSSION RANDOM NUMBER GENERATOR
  (A406) 22137A  CUMULATIVE DISTRIBUTION PROGRAM
  (A407) 22121A  CROSS-TABULATION PROGRAM
  (A407) 22138A  KENDALL'S COEFFICIENT OF CONCORDANCE: W
  (A407) 22139A  KENDALL'S COEFFICIENT OF CONCORDANCE
  (A407) 22140A  KENDALL'S TAU CORRELATION
  (A407) 22147A  MULTIPLE CORRELATION ROUTINE
  (A407) 22155A  DUNCAN'S MULTIPLE RANGE TEST
*R(A407) 22158B  KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST
  (A408) 22039A  MEAN, DEVIATION, AND CORRELATION COEFFICIENTS ROUTINE
  (A408) 22141A  GENERAL STATISTICS PROGRAM
  (A408) 22142B  GENERAL STATISTICS FOR MULTIPLE GROUPS
  (A408) 22143A  PROBABILITY SUBPROGRAMS
  (A409) 22126A  CROSS CORRELATION ANALYSIS
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  (A409)  22186A  MULTIPLE CORRELATION MATRIX PROGRAM
  (A410)  22148A  COMPLETELY RANDOMIZED DESIGN
  (A410)  22149A  COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING
  (A410)  22150A  RANDOMIZED COMPLETE BLOCK DESIGN
*R(A410)  22151B  RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING
  (A410)  22152A  TWO-WAY FACTORIAL DESIGN
  (A410)  22153A  THREE-WAY FACTORIAL DESIGN
  (A410)  22154A  ANALYSIS OF VARIANCE INFORMATION GENERATOR
*N(A505)  22325A  COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE TO CELSIUS
                       DEGREES CONVERSION
*N(A506)  01530A  ECG INTERPRETIVE SYSTEM
  (A506)  05680A  MEDACE
*N(A506)  05690A  COMPUTERIZED CARDIAC CATHETERIZATION LABORATORY SYSTEM
*R(A506)  22221B  HP BIOMEDICAL RESPONSE AVERAGING PROGRAM
  (A506)  22222A  BLOOD ACID-BASE VARIABLES DETERMINATION PROGRAM
*N(A506)  22240A  LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM
*N(A517)  22384A  EFFECTIVE PERCEIVED NOISE LEVEL
*N(A701)  22378A  RTE LOGBOOK
*N(A720)  22266A  MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM
*N(A880)  22332A  THE EXECUTIVE GAME
  (A901)  22040A  SCOPE DISPLAY DEMO
  (A901)  22099A  DOS DEMO
  (A903)  22094A  JEU DE MORPIONS (GAME OF TIC-TAC-TOE)
*N(A903)  22298A  BATTLESHIP
*R(A904)  22162B  X-Y PLOTTER ON PRINTER
  (A904)  22163A  TIME SERIES PLOTTER
*R(A904)  22164B  HISTOGRAM PLOTTER PROGRAM
  (A904)  22182A  HISTOGRAM PLOTTER ROUTINE
*N(A904)  22262A  THREE DIMENSIONAL PLOT SUBROUTINE
*N(A904)  22324A  BCS VARIABLE SIZE PLOT FOR THE CALCOMP 565
*N(A904)  22348A  X-Y PLOTTER FOR 11 INCH PAGE PRINTER
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